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THE SOUTHERN PLANTER,

Devoted to Agriculture, Horticulture, and the Household Arts.

Agriculture is the nursing mother of the Arts.—*Xenophon.*

Tillage and Pasturage are the two breasts of the State.—*Sully.*

FRANK: G. RUFFIN, EDITOR.

P. D. BERNARD, PROPRIETOR.

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For the Southern Planter.

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THE PROFITABLE IMPROVEMENT OF POOR LAND, AND EITHER MAINLY OR ENTIRELY FROM ITS OWN RESOURCES.

BY EDMUND RUFFIN.

For nearly or quite half a century—or as long as essays on agriculture have been written and published in this country—the subject of enriching poor or exhausted lands has been under discussion, and seems still to be an open question. In latter times premiums have been offered for the best plans—and some very good papers have been written by men who were both practical and intelligent farmers—and in all the time referred to, many other articles, wild or foolish, by writers who were merely theorists, or but closet agriculturists. I have not before undertaken to discuss this question independently and exclusively. Still, a large portion of the contents of my various agricultural writings bear more or less directly upon this subject; and a large portion of my practice and labors, as a farmer, and improver of soil, for nearly forty years, have been directed especially to the object of enriching poorlands, and, except in the earlier attempts, always with more or less of successful and profitable issue. Upon these grounds, I will presume to offer my views and instructions, in addition to the many preceding, as to the improvement and fertilization of poor lands—and in the manner that will be supposed of least cost in proportion to the benefit to be gained—and the most effectual, and durable, and also profitable, for the condition of the land and the other capital employed. I shall recommend no means which I have not tested and found successful, and in long and large practice—(unless stated otherwise)—and therefore may venture to claim, in advance, that every instruction and every statement to be offered will have been fully tested by experience—although not in connexion, as parts of one entire and regular plan of operations, pursued

exclusively and continuously, and without omissions or additions.

Among the best recent essays on this subject were two by practical farmers, Edward Stabler and Horace Capron, of Maryland, which were published in the American Farmer of 1848, and to which were awarded the first, and second premiums offered through that publication for the best instructions for the improvement of poor and exhausted lands. However much the particular and more especial recommendations of these pieces varied from each other, and from any others on the same subject, these, and all others of any extensive practical value, or worthy of consideration for their main object, have concurred in one of the various means proposed for securing the improvement they arrived at. This was liming—or in more general terms, the application of calcareous manures. This, as I think, was the indispensable part, the very foundation, of each of these instructions—as it must be of every useful scheme for enriching naturally poor lands, at least. And though to many of the readers of all such pieces, (and perhaps also to some of the writers themselves,) the one feature of liming may have appeared less prominent than some others in company, as for example, deep ploughing, trench or sub-soil ploughing, gypsum and clover, guano, grass or root husbandry, stock management, compost manures, &c. &c.—and although each and all of these, may have been very useful auxiliary means—still, I maintain that all these, if without liming, would have effected but little, or nothing for *profitable* fertilization; and that liming would have effected much, even if without any unusual or expensive aids. Therefore, for my plans for improving poor lands, with profit, I also must not only require calcareous manure, but claim it as essential means. But except this, if a purchased commodity, and for the seeds of a portion of the green-manuring crops, nothing will be required for the great and profitable improvement of a poor farm, under usual circumstances, other than the labor and resources of the farm itself. Other foreign or expensive aids are not therefore deemed unadvisable or unprofitable. If judiciously used, such aids, doubtless, would add much to the profit to be derived, or to the quickness of attaining it in large measure. But they may be postponed, or substituted, or even dispensed with alto-

gether; neither of which can be done as to lime.

The whole system of instruction which I propose, or the directions comprising every rule essential to improvement, fertilization, and production, may be stated generally in a few short sentences, thus:

1. Drain all arable land that greatly needs it—or if the draining would be too costly, cease to cultivate that portion. Lands suffering much from excess of water, cannot be enriched by manures of any kind, are cultivated with great difficulty, and produce crops much below their grade of fertility.

2. Apply marl or lime, properly, and not excessively or unequally, on all ground not naturally calcareous.

3. Let the fields have enough respite from tillage, and from bearing market crops, and also from grazing, so that they may derive from their own growths, left on the ground, added to the farm-made putrescent manure, more enriching matter than is abstracted by the crops of the rotation, and thus removed from, or lost to the farm.

4. So far as may be *cheaply and profitably* done, add to, or substitute the natural growth of weeds, &c. by clover or other and better manuring growth—and collect and apply as manure all available supplies of other vegetable or animal matters, which are not already diffused over the lands, as is the case with grass, weeds, stubble of grain crops, &c.

5. Plough well, prepare for and till crops carefully, and especially pursue a judicious rotation of crops and culture, suited to the existing conditions of the locality, and the wants of the farm.

I shall not attempt to argue or adduce evidence in support of these opinions. Nor will the directions be extended into detail. The occasion forbids both. Deeming that my views will be made more clear, and perhaps the instructions be the more impressive by the novel manner of illustration in which they will be presented, I will suppose and describe a particular case of land and its conditions, and also the general but sufficiently precise method and procedure for its improvement, as illustrative of my opinions, and the results of their application. But the conditions supposed will be similar in all essential points to those of thousands of farms and their proprietors. Folly or quackery only would recommend one system of improvement as suitable to or preferable for lands in all situations and under all different circumstances and conditions.

As it is not designed to embrace any conditions with which I am not practically and well acquainted, let it be supposed that the farm in question is in the tide-water region of Virginia, (or below the granite range which forms the falls of the rivers—) and, (for convenience of reference,) that it contains 300 acres of arable land, in three fields, heretofore enclosed separately by dividing fences. There is enough wood-land to supply the farm with

fuel and fencing timber—and also enough to have before permitted the usual former practice of clearing some acres of “new-ground” every winter, to add to the space cultivated—or, more generally, to supply the place of as many acres of the most exhausted and worthless old land, which then would be “turned out” of culture.

The land does not require drainage, except such as the ploughing in ridges may serve for. Or if other draining is required for some parts, it is either so easily done as to be executed by the farm laborers, among the other labors annually recurring of preparation and tillage—or, if more costly, that the returns increased thereby are rich enough to repay the cost with profit, and so reimburse, as a separate matter, the extra expenses and profits of drainage.

The surface of the farm is not so hilly as to add much to the difficulty or disadvantages of ploughing and culture, or to produce much injurious and unavoidable washing by rain-torrents. The soil is not too clayey for corn, nor too sandy for wheat culture. But little of the land was rich naturally, and much of it was poor at first, and all had been much reduced by exhausting tillage. The rotation latterly had been the usual and very exhausting one (though formerly the mildest in use,) of three-shift, 1. corn, 2. wheat on as much of the land as could bring say 3 bushels to the acre, (or oats instead—) and the still poorer part left without a crop—and 3. grazing by as many lean cattle as could find bare subsistence. The products might be 10 bushels of corn to the acre, on an average through the field, and 4 bushels of wheat on the 50 best acres of the 100 in each field—the other 50 being too poor to bring even 3 bushels.

The few cattle supported by the untilled field, with the aid of the woods’ or outer range, served to furnish a scanty supply of milk and butter, to keep up one or two pairs of poor oxen, and rarely to supply a middling beef. The cattle consumed, as food and litter, the offal of the crops, and converted the remains to manure. The few sheep were as ill provided with food, and of as little profit as the cattle. If hogs enough were kept to provide bacon for the family, whether on the pasture field or the woods’ range, they generally cost as much in the corn they consumed, and were kept poor upon, and that required afterwards to fatten them, as the meat obtained was worth.

Such was, 30 years ago, the condition, (if not still worse,) of much the greater number of farms in the old settled parts of lower Virginia. Of the few exceptions, some were so because of containing more or less land originally fertile. But the greater number of exceptions were caused by still more exhausting tillage than that supposed above—or still more exhausted fields, and smaller products.

Now suppose a new proprietor, by inheritance or purchase, to become possessed of the farm, and to determine to begin its improvement. His predecessor had, by the former

course pursued, barely supported his family each year—or barely avoided making absolute loss on his farming, and diminution of his capital. The present occupant might continue to do the same. So we will suppose the former tillage to have been barely remunerative—causing no actual loss of capital, and yielding no profit, beyond paying expenses, and furnishing a support to all on the farm. The new proprietor, like the former, has no surplus capital, beyond the farm, its stock, provisions for the year, and necessary implements. He is not able to pay for costly means for improvement. He cannot reduce the extent of cultivation, to devote the labor so saved to improvement, because every bushel of the product is required for the consumption of the farm.

The farm has marl, as yet unused. The proprietor understands its value, and has learned how to work and apply the marl. His first arrangements are planned with a view to the performance of these operations. He must, indeed, go in debt for the new and additional expenses required. And however wrong and dangerous it always is for a farmer to incur debt for articles to be consumed, and to return no profit on the use, the case is entirely different for such outlay as is here proposed. Further—such a man, and for such a purpose, can have no difficulty in obtaining, on loan, the necessary amount of funds, and at sufficiently long time for payment. He must, however, be very sure to pay the interest annually and promptly, even if by bearing some privations. If required, his land will be the ample security for the debts thus incurred.

Operations of the First Year.

In the beginning, the farmer cannot alter much the former course of cropping. But he sells, (if possessing) the larger portions of the cattle and hogs, and all the sheep. The few retained hogs are well kept in a sty, or a small enclosure; and the few cattle are kept (well or ill as it may be, but) principally elsewhere than on the fields. At any rate, from their reduced number, even if still permitted to graze on the field not tilled, it will lose but a small portion of its product of weeds, or grass, by being grazed or trampled; and the much larger proportion of the whole vegetable cover will all go to manure the field. This supply is indeed small, and the manure poor, but such as it is, it is nearly a clear gain. The stock management and products could scarcely be worse than before, and probably are better. If not better the first year, they will become much better and also more profitable in a few years thereafter.

The farmer begins to marl as soon in the year as possible, with a force suitable to the designed operations. As the necessary amount of force depends upon the circumstances of the operations, and as this force neither can nor ought to be kept entirely distinct from that for the other and ordinary farm labors, the cost of the extra force employed for marling

cannot be estimated otherwise than by the amount of this particular labor performed. There is much time of the year, when the ground is wet and soft, that carting man cannot be done advantageously, and when the team and hands can be profitably used for other farm labor. There are other times of pressure for the crops, when hands or teams, or both, may be worth double their usual value. At such times, it will be economical to so devote the marling force. There are other times, in winter, when the earth is either water-soaked, or covered with snow, or hard frozen, and unfit for all usual farm labors, when the removing the overlying earth from marl may advantageously engage all the farm hands. Thus, by exchanges of labor, the marling may be greatly forwarded, and yet the crop labors greatly aided in pressing occasions, and so a greater quantity of crop may be cultivated and secured. For all these considerations, the extra force employed for the purpose of marling must be charged to that operation by the amount of such labors actually performed. It is to be presumed, that whenever the farmer shall use that force for other labors, that its direction will be not less profitable.

At different times, and under different circumstances, I have made careful estimates of the expenses of four distinct marling operations, each of considerable extent. The difficulties of these different labors were all greater than the average throughout all the marl lands of lower Virginia should be, and therefore my operations were of greater cost. The carefully estimated total expenses for the 100 heaped bushels of marl spread on the field, for these four operations, were respectively 142, 97 $\frac{1}{4}$, 86 and 94 cents. These rates were obtained by careful estimates of the costs of all the elements of labor, for a time embracing 1846 and a number of years preceding; and these operations having been more laborious than is usual, and the first of them (at \$1.42) very much more laborious, (and was discontinued on that account,) I am sure that 86 cents for the 100 bushels would have been higher than a fair average price, in all the space of time stated. And the prices for labor, as then estimated, were full high for a general average of all the past, or any considerable previous time—and also may be for the time now to come*. But recently, and now, under the extraordinary demand for labor for public works, and of high prices of cotton at the south, the prices and hires of slaves have been much increased. Mules also still sell as high as when the demand for government use, in

* The costs of all the elements of marling labors, were published in all the three last editions of the "Essay on Calcareous Manures;" and the same corrected, which are used as grounds in this piece and also some extended estimates of expenses, built upon these grounds, and elements of cost, will appear in the next edition, now in the course of publication.

the Mexican war, so greatly raised the price of mules, and created a general scarcity not yet removed—though the prices of horses have not much advanced. These much higher prices, being produced by transient causes, ought not to be charged as if usual. But something ought to be allowed for the advance. This allowance I will put at one-fourth of the supposed previous and usual fair average price of 96 cents—which addition will make 120 cents for the 100 heaped bushels of marl, to be uncovered, dug, hauled to and spread upon the field.

With two extra horses or mules for the marling force, aided by, and also aiding the farm force, as above stated, it will be easy enough in a year to marl all the field of 100 acres then at rest. The marl is the ordinary *miocene*, having no appreciable manuring element except the carbonate of lime—and of that containing 40 per cent. It is laid on at 300 bushels to the acre, which will give a trifle more than 1 per cent. to the ploughed depth of soil of 4 inches; and of course less in proportion, in later time, for the depth of soil and of ploughing when increased to 6 or more inches.

The 100 acres then will have received 30,000 bushels of marl, at 120 cents the 100 bushels, or at the total cost of \$360. This should be the separate expense incurred for this object; and for which a debt of that amount has been incurred. This is the simplest and most correct mode of stating the expense—though it may be very different in amount from the first outlay actually made. For if purchasing two mules or horses, and two or three young negroes, as well as the carts and implements, perhaps the first outlay required might be \$1500 or even \$2000; and yet, after 5 years' operations, the remaining stock might possibly then be worth quite as much as the whole at first. In such a case, the advocate for this as the only correct mode of estimating the expenses, would arrive at the absurd conclusion that 5 years' marling operations had cost nothing for hand or team labor. All such chances of gain or loss, on the rise or fall of market value of laboring force, must be excluded from any fair estimate. The amount here charged, of \$360, is for annual hire of hands, of interest on capital expended in purchases, and supposed usual deterioration of stock—all fixed by careful estimates and fair average of prices and values.*

* The absurd conclusion above referred to would appear strikingly in my own recent labors. In 1844 was performed the largest job of marling of which the expenses were carefully estimated, and which is the one stated above as costing 94 cents for the 100 bushels of marl. It so happens that the particular mule whose work was then separately estimated, and also three others of the eight I then owned, are still in my possession, and though more than at full age for labor in 1844, either of these four mules would now sell for more than in 1844, owing to the now higher market prices. For the same and other reasons, the hands then employed are worth

At the end of the first year, the farmer, upon his cultivation, (as in former times,) will have just paid the ordinary expenses, and provided a year's support for the farm—and owes \$360. He has saved something in the capital of live-stock, by selling off, (or otherwise by not buying in,) two-thirds of the unprofitable animals before kept; and he has to encounter, at first, other difficulties not much less costly in supporting the small number left, whether outside of his fields, or partly herded therein. The early gain in one respect may balance the inconvenience in the other.

As the fields are not to be grazed, as yet, the farmer will save hereafter all the expense of the fences which before separated the fields. For the next winter, and one or two more, he will have no new fencing to build, and can repair the general enclosing fence with the now surplus rails of the old division fences. He will also save the before usual and annual expense of clearing poor woodland, upon which no clear profit had been made. There will no longer be any need to "turn out" the poorest arable spots—and therefore no necessity to supply the deficiency continually so caused, by bringing in newly cleared land, however poor or unprofitable.

Operations of the Second Year.

The fields produce sheep-sorrel when under crops, and poverty-grass when at rest. Of course the soil is *acid*, and marl will thereon produce the quickest returns, and the greatest per centage of increase on the former products. On such lands, after two years of rest, and five or six of exemption from grazing, and with about 500 bushels of marl to the acre, (a wasteful, and subsequently an injurious quantity,) I have rarely failed to obtain on the first crop an increase of 50 percent.; more often made 100—and in some cases full 200 per cent. increase of corn, and of wheat next following, upon the previous production. But in the case now under view, there has been but one year of rest and exemption from grazing, (or two on the poorest half of each field, not put in wheat—) and the more economical and safe

more now. Hence, if any such extra force had then been bought by me for marling (which, however, was not the case) the actual result would be, that, instead of paying anything for the labor for eight years' marling, the laborers would have returned a clear profit. But though such is the actual result, it would be improper and incorrect to admit any part of such gain as a lessening of the estimated cost—as it would be to charge losses under the contrary conditions of reduced market value, or deaths of laborers and mules. And it is not less incorrect to admit temporary alterations of even annual expenses, to govern estimates designed for much longer times. Hence, the increase of cost allowed above, upon the supposed fair average of 96 cents, to 120 for the 100 bushels of marl applied, is not justly required, unless the higher prices shall be enduring—and at all events the allowance of increased expense is ample.

amount of 300 bushels of marl only was applied; and though greater future net profit will be derived from this smaller application, there will be less of immediate and gross return. Still the first increase may be safely estimated at 50 per cent. Then the marled land which before would have brought 10 bushels of corn, will now bring at least 15. Then 67 acres will make as much corn (1000 bushels,) as 100 acres did before. Therefore, 67 acres of the marled field (No. 2,) only will be put under corn; and the remaining 33 acres ploughed for pea-fallow, and the peas sown broad-cast late in May, or early in June—or even to the 10th of July—to prepare for and precede wheat. A portion of the other part, in corn, may also, (for trial,) be sown in peas, and the seed covered by the latest tillage of the corn. If found of sufficient manuring benefit upon the wheat crop following, this interposition of peas between the corn and wheat may be made general. But, though I approve and practise it, no present account of that operation will be observed here, either as to its cost or profit. Either sowing, with the aid of the previous marling, will produce a good cover of pea-vines—but especially on the 33 acres given entirely to that growth. Both parts of the field, in corn and in pea-fallow, will be sown in wheat in autumn.

But this pea-fallow will have cost money for seed, and additional labor of ploughing and harrowing. The money cost will be charged. But the labor is fully compensated in the omission of both the ploughing and cultivation of the same land in corn, for which part of the former culture this pea-fallow was substituted.

In the course of this second year, all the field (No. 3,) then at rest, will be marled.

At the close of the second year the farm account, so far as affected by the new practice, will stand thus:

Second Year—Farm Dr.

Marling of previous year, (Field 2)	\$360,
interest (paid) \$21 60,	\$381 60
Marling in current year (Field 3),	360 00
Seed peas, 33 bushels at 70 cents,	23 10
Additional seed wheat for 50 acres, 50 bushels, at 90 cents,	45 00
Extra, for contingencies of beginning operations,	9 60
Total debits,	<u>\$820 30</u>

As the former products were supposed barely to remunerate the expenses of cultivation, no account will be taken of either these products or expenses, except as to their subsequent increase or decrease. By reducing the space under corn, (from 100 to 67 acres) there has been no notable increase of that crop—and no wheat yet reaped from marled land.

Operations of Third Year.

The field first stated as under corn culture, (No. 1,) is now at rest, and is marled during

this year. According to former usage, one-half had not borne wheat, and so had had two years of rest. Field 3 comes under corn—and, as in regard to No. 2, two-thirds only of the field are planted in corn, and the other third put in pea-fallow—and all the field afterwards in wheat.

At the close of the year, the account will stand thus:

Third Year—Farm Dr.

Balance due at close of second year,	\$820 30
Interest for same, for 1 year,	49 22
Marling of current year,	<u>360 00</u>
Clover seed for 100 acres of wheat- land, 10 bushels, at \$5,	50 00
(Seed peas, 33 bushels, saved from the crop.)	
Seed wheat, additional, 50 bushels, at 90 cents,	45 00
Total debits,	<u>\$1,324 52</u>

Farm Cr.

Increase of wheat on 50 acres, after corn, from 4 to 6 bushels, 100 bush.	
New product of wheat on 17 more acres of corn land at 6 bush.	102
New product of wheat, on 33 acres of pea-fallow, at 10 bush.	330
Bushels,	530 at 90, \$478 80
Amount of debits,	<u>1324 52</u>
Balance due,	<u>\$845 72</u>

Operations of Fourth Year.

The field first cultivated (No. 1,) is now again for corn (according to the former course,) and has been all marled during the past year. This completes the first marling, at 300 bushels. But that is not deemed enough for the now improved soil, and its better supply of organic matter, and consequent need for more calcareous matter to combine with the increase of organic, and also to supply the increased depth of soil. The marling is continued on part of the field at rest, (No. 2,) but only at the rate of 100 to 150 bushels, and that application is not to be extended to more than 50 or 100 acres for each year, until all shall have been thus remarled. This change will leave free, from half to more than three-fourths of the labor previously given to marling, to be diverted to other and now increasing farm labors. For though, as yet, the corn-culture is even less laborious, for its space, (by the sorrel having been destroyed by the marl,) the larger wheat preparation and harvest labors, and thrashing, and also the transportation of putrescent manures, have all become more laborious. The gradual transference of from

half to two-thirds, and finally all the labor before given to (and still charged for) marling, will serve to supply all these new demands, until other provision shall hereafter be made for their still greater increase.

Of the field No. 1, as before, 67 acres only are put in corn, and the remaining 33 in peafallow. As a change of rotation is to begin next year, the culture for this year must be made suitable for that change. On this account, the 33 acres of peafallow and 17 of the land in corn or 50 in all of this field, only will be sown in wheat. The other 50 will remain idle until next year, then to be put in peafallow, according to the designed new rotation.

The field No. 2 is this year at rest, and under clover, of such moderate product as the still poor land, and the seasons, have permitted to grow. This clover has received this year (as the beginning of a regular practice,) all the manure from the stables and barnyard, as top-dressing. Gypsum should be tried, as it succeeds in most cases on clover after marling, where totally inert if applied before. The putrescent manure of the farm is now much increased in quantity—and its operation is now as abiding on the land since marling, as it was fleeting before. It has begun to add considerably to the increase of crops. Of field 2, embracing the portion of clover top-dressed, 50 acres are fallowed in August and September, and subsequently put in wheat.

Fourth Year—Farm Dr.

Balance due,	-	-	\$845 72
Interest on same,	-	-	50 74
			<hr/> \$896 46
Expense of extra force before for marling, but now mostly aiding other labors,	-	-	360 00
Clover seed 10 bushels,	-	-	50 00
Additional seed wheat, 50 bushels at .90,	-	-	45 00
Total debits,	-	-	<hr/> \$1351 46

Farm Cr.

Increase of wheat crop on 50 acres formerly sown, at 2 bushels,	-	-	100 bus.
Additional 17 acres after corn, 6 bushels,	-	-	102 "

Additional 33 acres peafallow, at 10 bushels,	330	"
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Bushels -	-	-	532 at .90	\$178 80
Amount of debits,	-	-		1351 46
Balance due,	-	-		<hr/> \$872 66

Operations of Fifth Year.

The irregularity of the supposed preceding culture, and some of the defects of the description, were required by the necessity of preserving without any abatement the previous supply of corn. Now there has been enough improvement made to admit a more regular and better rotation. This year, the corn (on Field 2,) for the first time will be a second crop after the first marling of 300 bushels, and with the aid also of the later addition of 100 or 150 bushels of marl to the acre, according to the increased wants of the soil. The effect of the former dressing, if alone, would now be fully doubled, or giving an increase of 100 per cent. on the first stated production—making the rate 20 bushels of corn to the acre. The clover also, though mostly of dwarfish growth, was well sprinkled over the field, last year at rest, and which is now to come under corn. The clover, poor as it may be, is a profitable exchange not only for the former scanty growth of poverty grass, but also of the ragwort and other weeds more lately indicating much improved fertility.

Each of the former three fields is now to be divided into two, and hereafter upon each one of these six fields, is to be commenced the same rotation of six shifts, which it will be enough to describe for one course, or one field, only.

The former field No. 2, which according to the first three-shift course would have all come under corn this year, was last year under clover in its second year of growth. This will make two fields (A and E,) of 50 acres each. One of these, E, was last summer fallowed for wheat, as before stated; and the other, A, this year (the 5th) will be under corn. The following tabular view, with the accompanying explanations, will exhibit the past as well as the designed future course of culture, and estimated production to the 11th year from the commencement of the improvement by marling.

CULTURE UNDER THE MODIFIED THREE-SHIFT ROTATION.

Year.	Field No. 1—100 acres,	Field No. 2—100 acres,	Field No. 3—100 acres,
1st	<i>Not marled</i> —100 acres in corn—(10 bushels the acre.)	At rest, in weeds. <i>Marled.</i>	50 a. wheat (4 b.) 50 (poorest) at rest.
2d	50 acres in wheat, (1 b.) 50 acres at rest.	Corn, 67 a. (15 b.) 33 a. pea-fallow. Wheat, 67 a. (6 b.) 33 a. wheat, (10 b.)	At rest— <i>Marled.</i>
3d	At rest, in weeds. <i>Harvested.</i>	67 a. in corn (15 b.) 33 pea-fallow.	67 a. wheat (15 b.) 33 wheat (10 b.)
4th	67 a. in corn, (15 b.) 33 a. pea-fallow.	50 acres fallowed.	

SIX-SHIFT ROTATION.

Year.	Field A, 50 acres— (half of former No. 2)	Field B, 50 acres— (half of former No. 1.)	Field C, 50 acres— (half of former No. 1.)	Field D, 50 acres— (half of former No. 3.)	Field E, 50 acres— (half of former No. 2.)	Field F, 50 acres— (half of former No. 3.)
5th	Corn (20 b.)	Pea-fallow.	17 a. wheat after corn, (6 b.) 33 a. wheat on pea-fallow, 10. Clover—fallowed.	Wheat (12 and 16 b.) Clover or weeds.	Wheat, 35 a. at 12 b. and 15 a. 16 b. Clover or weeds.	Clover or weeds.
6th	Pea-fallow.	Wheat (12 b.)	Wheat (12 and 16 b.)	Clover (12 and 16 b.)	Corn (20 b.)	Corn (20 b.)
7th	Wheat, (12 b.)	Clover—fallowed.	Wheat, (12 and 16 b.)	Clover or weeds.	Pea-fallow.	Pea-fallow.
8th	Clover, fallowed.	Wheat, (12 and 16 b.)	Corn, (20 b.)	Corn, (20 b.)	Wheat (12 b.)	Wheat (12 b.)
9th	Wheat (12 and 16 b.)	Clover or weeds.	Pea-fallow.	Wheat (12 b.)	Clover—fallowed.	Clover—fallowed.
10th	Clover, or weeds.	Corn (20 b.)				
11th	Corn (25 b.)	Pea-fallow.	Wheat (18 b.)	Clover—fallowed.	Wheat (18 b.)	Clover or weeds.

The new rotation is of 6 fields of 50 acres each, and with the succession of culture stated under the head of each, in the foregoing table. More extended in description, the scheme of rotation, which is the same I have for some years practised, and still prefer, is the following:

- 1st year, Corn—
- 2d year, Peas, sown broad-cast, and ploughed under in autumn for
- 3d year, Wheat—clover sown. Grazed and trodden more or less after removal of wheat.
- 4th year, Clover—(receiving all the manure as top-dressing) first crop partly mown—(or partly grazed) second, ploughed under in August and September for
- 5th year, Wheat.
- 6th year, Clover or Weeds, grazed until in June.

As before stated, the 50 acres in corn (on A) will now produce double its former crop to the acre, or as much as did the 100 acres before marling. The wheat is on (Field C), 33 acres of pea-fallow producing 12 bushels, and 17 acres after corn at 6 bushels; and (on Field E,) 50 acres of clover-fallow, (and oldest marling, and with second marling added,) and on part of which all the manure made the previous winter and spring had been applied as top-dressing. If this manuring covered 15 acres, the wheat thereon should be full 16 bushels, and 12 for the unmanured 35 acres.

This will make the total crop of wheat as follows:		
On 17 acres after corn, 6, -	102	
On 33 acres after pea-fallow, 12, -	396	
On 35 acres, clover fallow, 12, -	420	
On 15 acres, of same field, manured, 16, -	210	
Bushels, - - - -	1158	

Fifth Year—Farm Dr.

Balance due at end of 4th year,		
- - - -	\$872 66	
Interest, - - -	52 36	
		\$925 02
Cost of force formerly marling, and now mostly otherwise engaged,	360 00	
Clover seed, 5 bushels, (none sown on wheat or clover fallow,) -	25 00	
Additional seed wheat, 50 bushels,	45 00	
Total debits, - - -	\$1355 02	

Farm Cr.

Increase of wheat crop of 1158 bushels over the former 200, or 958 bushels at 90 cents,	862 20	
Debits, - - - -	1355 02	
Balance due, - - -	\$492 82	

Operations of the Sixth Year.

This will be the turning point, or crisis, of the farmer's labors for improvement. Though as yet scarcely any clear annual profit has been obtained, and the debt incurred has not been discharged, still the great difficulties of improvement have been overcome, and the heaviest costs have been paid. No clear or disposable income has yet been enjoyed. But the productive power of the farm, and its gross products, are already much more than doubled; and the net products increased in still greater proportion.

But the labors and consequent expenses of the new rotation, and of the better and more extended tillage, are also now increased greatly, though much less than in proportion to the increased production. One half, (or more) of the \$360 before charged annually for marling, has already been given to other labors—and now all will be so diverted except one-fourth annually, (or \$90) which will be ample for all continued marling for the next 10 years.

The growth of clover, by this time, will have greatly increased the products of live-stock, without the additional grazing having materially encroached on the manuring value of the vegetable products. Trampling the land, to some extent, will now be useful to compress the too loose soil—and also, close grazing, for short times, will do good in cleansing the land of both weeds and insects. Thus the cloverfield preceding corn might be grazed from April to June or July, and the two wheat-fields after being cleared of the wheat—and both with advantage to the next succeeding

grain crops and to the clover. The increase of stock products may, for the present, balance any additional amount of increase of labor required for tillage, and not already provided for.

For the remaining five years of this first round of the six-shift course, there will be no further increase of crops claimed, beyond the before stated rates of 20 bushels of corn, 12 of wheat for both pea and clover-fallow, and 16 for the manured clover-fallows, now extended to 20 acres annually. At these rates, the 6th year's account will stand thus:

Sixth Year—Farm Dr.

Balance due at close of 5th year,		
- - - -	\$492 82	
Interest, - - -	29 57	
		\$522 49
Other debits as before,	-	430 00
Total debits, - - -		\$952 49

Farm Cr.

Increase of wheat—present crop, 50 acres pea-fallow at 12 bush.	600	
30 do. clover-fallow at 12 "	360	
20 do. do. manured at 16 "	320	
		1280
Deduct former product 200, leaves 1080 bushels at 90 cents, -		972 00
Debits, - - - -		952 49
Balance in favor of farm, - -		\$19 51

At the end of 6 years, the farmer has now discharged the whole debt incurred, and paid all the expenses of so far enriching his farm. Under the mild rotation prescribed, the improvement will be permanent; and even progressive, as inferred, to a much higher mark of productiveness. The account stated for one more year will show the beginning of this new condition of things, which is supposed to continue, (or be thus averaged) through the current course, or to the end of the 10th year of the farmer's occupancy and improvement.

Seventh Year—Farm Dr.

Additional expenses as before, viz:		
Force formerly engaged in marling, and now mainly at other farm labors,	\$360 00	
Clover seed \$25. Additional seed wheat \$45,	70 00	
Total debits for additional labors,		\$430 00

Farm Cr.

Increased product of wheat, over the 200 bushels at first produced, 1082 bushels, at 90 cents, -	972 00	
(Dropping the last year's balance due the farm of \$19 51.)		
Debits, - - - -		430 00
On improvement operations—balance in hand, - -		\$542 00

Thus, the operations of the year, after supplying \$430 to pay for increased labors of tillage, leave a clear and disposable surplus of \$542. The like (average) products will be obtained in each of the three succeeding years of the same first round of the new rotation, and reaching to include the 10th year of the farmer's labors. It is useless to continue to state the account for these years, and would be improper to treat the annual disposable surplus (of \$542 at present) as an accumulating fund. The farmer has earned the right to expend this annual surplus for the greater comfort and benefit of his family, or may use a portion of it for any auxiliary means for obtaining still greater improvement and production of his farm. The general results of such means will hereafter be slightly touched upon. But without counting anything from such additional means—and only from those already employed, and the system in progress—looking to the still gradually increasing effects of man (as usually experienced) for some 10 years after the application—the still growing supplies of prepared putrescent manures, and of enriching matter in the two green manurings in the course of crops—it will be moderate enough to suppose that with the second course of this rotation, and beginning with the 11th year of the whole labors of improvement, the farm will have reached (for the next round of crops,) the average production of 25 bushels of corn, and 18 of wheat, both on pea and clover-fallow. Then the grain products will stand thus, for the 11th year (as noted in the preceding table) and the course of the rotation reaching to the 16th year:

50 acres of corn, at 25 bushels, 1250 b. at 50 cents,	\$625 00
Former crop (on 100 acres)	
1000 b.	500 00
Increase, or surplus, 250 b. at 50 cts.	\$125 00
100 acres of fallow wheat (pea and clover) 18 bush- els, 1800 b. at 90 cents,	\$1620 00
Former crop, 200 b.	180 00
	1440 00
Total annual increase,	\$1565 00

If, of this increase, \$565 be added to the \$360 before allowed for increased labor, making \$925 in all, there will still remain an increase of clear annual profit of \$1000. If the allowance for increase of tillage and other ordinary farm labor was too small before, the present increase (to \$925) is large enough to compensate all deficiencies.

Still another large and new charge should now be made against the surplus products. Until the 7th year, the farmer received no remuneration for his personal labors and superintendence, except the subsistence of his family for the time, as in all previous time for the proprietor and his family.

Since the 7th year, the whole surplus income of \$542 has gone annually to the farmer without charge; and now suppose the same amount continued to be allowed, as the annual compensation for the farmer's personal services. This large deduction from the present annual surplus products of \$1000, will still leave $(1000 - 542 =)$ \$458 of clear profit, after paying every expense of past improvement of regular culture of the farm, and \$542 as wages to the farmer, which is just as much as that whole amount more than the total surplus which the farm produced before its improvement—there having been then no surplus, after barely supporting the farm. Having allowed these liberal deductions, the actual intrinsic value added to the farm by its recent improvement may be fairly estimated at the sum which as principal would yield the annual interest of the entirely clear profit \$458; which would be \$7666. This amount, is the least possible fair appreciation of the increased intrinsic value of the farm, as capital invested, without regard to the present or the former market price. Doubtless, if the case supposed actually had existed in all its parts, the market value (or estimated selling price) of the land when improved would be as much below the intrinsic or productive value, as the former would have been rated above the latter in the first unimproved condition. Whether the farm then would have sold for the ordinary price of \$5 the acre, or 5 cents only, (the last being as estimate more than the then intrinsic value)—or whether it would now sell for but \$8, or would command \$30 the acre—will not affect the estimate of the amount and value of the annual gross and net products, and of the intrinsic value of the actual improvements already made.

All conjectural estimates are necessarily uncertain and doubtful. Of these, of course, I cannot *prove* their being sufficiently moderate for reliance on the conclusions. No one has yet gone through precisely such a full and unmixed course of labors for improvement, so that the entire scheme can be pronounced to be fully tested by experience. But there is no one application of labor, and no improvement, herein stated, with its costs and its products, that I have not found sustained in some parts of my own practice—and the results are not contradicted by any other experienced facts. The costs are put higher (for reasons before given,) and the profits of results lower than I have found in all judicious operations of this description. In the foregoing statements, it was a condition (which is not to be found in any actual practice,) that the farmer's labors for improvement were always judiciously directed, and were never omitted or suspended. Many omissions, and some interruptions of proper effort, many errors of inexperience, accompanied and impaired my like operations, and lessened or postponed the otherwise certainly available results. But however disjointed and injudicious may have

been the labors of myself and all other improvers by marling, I am confident that none of the means supposed in this writing, upon the like premises, or in proportion to the measure of other premises, have failed to produce particular benefits equal to those here deduced—and in most cases, more benefit, and in less time. Hundreds of the most judicious and experienced laborers in this still recent mode of improvement, by marling or liming, will sustain this opinion by their concurrent testimony.*

In the foregoing scheme of improvement, my directions in sundry particulars have been swayed from what was deemed the best course, by the supposed constraining circumstances of the farmer—and in others, to better preserve simplicity and clearness of description. To meet the most general objection of "want of money to pay for improvements," a case was supposed of a farm that could not spare for sale a bushel of corn, and a proprietor who had not a dollar more than would maintain him and his family through the year's labors. If these restraints had not existed, perhaps some more costly or more hazardous means for improvement might have been added, with great benefit, in increasing or forwarding the

* After these estimates were prepared, I submitted them to the careful scrutiny of three of my friends, who are judicious farmers, and well acquainted with the operations and results of improving land by marling or liming. One of these farmers was John A. Selden of Westover, whose testimony I am authorized to use thus in this case, and whose name will command respect as a voucher for any agricultural facts or opinions. There was not one of my supposed results of the premises stated—or of the rates of increased production from the previous applications of marl and other treatment of the land—that each of these farmers did not deem full low enough for the means employed. Each of them thought that in some particulars the supposed increased production was put too low. I am confident that the same general opinions would be concurred in by the great majority, if not by all, of the most judicious and experienced marling and liming farmers in lower Virginia.

For the estimated costs of means for improvement supposed to be used, I should be glad to refer to others' testimony also. But I know of no farmer, other than myself, who has taken the pains to carefully estimate the expenses of marling, and therefore, I could not have the desired aid of correcting censorship on this score. I am then solely responsible for the correctness of the estimates of expenses. Those of the costs of marling labors were carefully prepared, and are believed to be very correct. But the other subsequent and ordinary farm labors, growing out of the improvements caused by marling, were of amount and expense so much more conjectural than anything else assumed, that these particular subjects may have been estimated very incorrectly. But this is the least important particular of the general estimate—and also the one in which every practical farmer is qualified to judge as well as myself, and to detect and allow for any errors of my estimates.

amount of fertility to be gained. In some other cases, some of the supposed means may be wanting, and may be supplied, though to less advantage, by other means. Some of these different circumstances will be hastily noticed.

If marl had not been accessible, lime would have done as well, at more or less greater cost.

On all corn land designed to have wheat next in succession, it would have been profitable to sow peas among the corn, as a manure crop.

If gypsum had been found effective, after marling, the small expense of its application ought regularly to have been given, for the leguminous manuring crops, clover and peas.

Guano might have been used on every wheat crop, and probably to great profit, at least so long as the land remained poor.

Bone dust in small quantity would probably have been profitable as manure.

These means I leave for others to estimate, either by their own experience, or the published and well-authenticated reports of experiments and practice of other farmers. I have but little personal experience of any of these manures which are commercial commodities. While not at all doubting the great benefit and profit of their use, I choose to limit my own estimates to subjects of my own experience.

For the Southern Planter.

JOINT WORM.

Mr. Editor,—I ask permission to occupy a small space in your forthcoming number with a postscript to a short notice of the joint worm, published in the September number at page 271. My principal object is to comply with a request made to me by Dr. T. W. Harris, the distinguished author of the "*Report on Insects Injurious to Vegetation in Massachusetts*." Being informed, by means of a special communication which I had addressed to him, of the conclusions to which I had arrived with respect to the habits and true nature of the joint worm, he has done me the honor to express an interest in the result of my observations, and to offer very valuable suggestions as to the most efficient way of prosecuting my inquiries with a view to the confirmation or correction of those conclusions. As it happens that there is much confusion in the old nomenclature for this department of entomology, Dr. Harris is anxious that I should employ the names used in his published work. He requests, "In case you should send an account of the joint worm to Mr. Ruffin, or to any other person for publication, that you will be pleased to adopt the nomenclature for the gallflies and their parasites, or supposed parasites, (whether all be so or not,) which you will find in Cuvier's *Animal Kingdom* and most other

modern books on entomology, instead of that originally proposed by Geoffroy, which I find in your communication. Geoffroy introduced much confusion in the names which he gave to insects, especially to such as these under consideration, and Latreille, himself, (who wrote the entomological part of Cuvier's great work, and who will long continue to be our principal authority,) saw fit to reject Geoffroy's names for these two tribes of insects, restoring to the gall-flies the name *Cynips* originally applied to them by *Linnæus*, and giving to the "Ichneumones minutii" of the latter (including several genera and sub-genera, such as *eurytoma*, &c.) the Fabrician name of *CHALCIS*. Hence Mr. Westwood and other distinguished European naturalists denote the gall-making hymenopters *Cynipidae*, and the other family *Chalcididae*, and this nomenclature I have followed in my work. If you have occasion to speak of the gall-flies, your readers, who may perhaps have my book, will readily understand you, if you refer them to the genus *Cynips*, and will perceive no contradiction between us; and in like manner if you speak of the "joint worm" as a chalcidian larva (whether you adopt the name *Eurytoma* or *Chalcis*) you will avoid the danger of having it confounded with the true *Cynipidae* from which it differs essentially in structure in its winged state. I am the more urgent on this point because any discrepancy in regard to names will be likely to mislead those who are not familiar with them."

The intelligent reader, by comparing the foregoing extract from Dr. Harris' letter with my communication published in your September number, will easily make the necessary correction of the nomenclature adopted in the latter. He should substitute for the term *Diplolepis* therein used as the generic appellation of the true or plant-sucking gall-fly, the old term *Cynips*, which had been originally applied by *Linnæus* to both the true gall-flies and their carnivorous parasites, but which *GEORFFROY* and *LAMARCK* had restricted to the latter, introducing the new name *Diplolepis* for the former. LATREILLE, on the contrary, followed by all later entomologists, has rejected the name *Diplolepis* altogether and has transposed the terms *Cynips* and *Cynipidae* from the section of parasitical to that of plant-sucking gall-flies. In this connexion it is to be observed that in the first part of my communication I used the family name *Cynipidae* in the *Linnæan* sense, as embracing both tribes of gall-inhabiting hymenopters, whereas according to the now accepted nomenclature it should have been restricted to the tribe which originally make the galls, the term *CHALCIDIDA* being adopted for those minute parasitical hymenopters which lay their eggs after the galls have been produced by the *Cynipidae* and whose larvæ prey upon those of the latter. To this tribe of *Chalcidians* or parasitical gall-flies the *eurytoma* of the barley and wheat would appear to belong, if the classifications of naturalists founded on *artificial* characters be cor-

rect. The point I have made is this: the history of the joint worm, as far as it has yet been investigated, seems to show both that it feeds on the juices of the plant and that it is the larva of the *Eurytoma hordei*. In other words, this species of *Eurytoma* is not exclusively, if at all, a carnivorous parasite, and consequently the classifications of entomologists in respect to this group of insects must undergo a modification in order to be reconciled with the *natural* characteristics thus ascertained. The *Eurytoma*, or at least this species of the genus may, after all be a *Cynipian*, but then the *artificial* tests of this family will be somewhat different from those now generally assigned.

The same opinion has, as I learn from Dr. Harris, been heretofore advanced by Professor Nees Von Esenbeck, but on grounds which were declared to be unsatisfactory by Dr. Westwood and Dr. Ratzeburg, both of whom controverted his statement "that he had become acquainted with some *Eurytomas* which were phytopagous," and, therefore, "more properly belonged to the *Cynipidae*." Dr. Harris is himself now strongly inclined to adopt my conclusions. I have recently forwarded to him several specimens of the fresh and living joint worm, the examination of which by himself and Dr. Jeffries Wyman has served to confirm my account of the mandibulate character of the mouth of this worm. He is, therefore, satisfied that neither the yellowish white worm found in a large majority of the galls, nor the less common white, hairy worm, can be the larva of a *Cecidomyia*. "There still remain, however," he says in his latest letter to me, "some points in the economy of the insect that require to be settled before a complete account of its history can be written. We find that a large proportion of the winged insects are evolved in the spring, having survived the winter in the larva (or pupa?) state. Of course they will soon afterwards be engaged in laying their eggs in the young wheat that had been sown during the previous autumn. In this same wheat, during the autumn, we are not to expect to find any larvæ of the *Eurytoma*, or at most only a very few in a small number of cases. The young plants ought to be examined *before winter* to determine this point, namely whether they are *much* affected by the joint worm. If many of these worms are found in the plants it would lead to the suspicion that the larvæ so found were not those of the *Eurytoma*; and on the other hand, if their occurrence in the young plant in the autumn is rare, it would afford additional ground for belief that the "joint worm" was the larva of the *Eurytoma*. When the insect is engaged in laying its eggs opportunity may be found to watch the process, to mark the plant, and to examine carefully the spot where the *Eurytoma* had been at work. If this spot be found not to contain larvæ already it will give further evidence that the *Eurytoma* is not a parasite."

I have given this passage at length in order to invite the co-operation of any of your readers in the infected region who may feel an interest in determining the history and true nature of these destructive insects. If any indications of the disease be perceived in the young wheat during the fall or winter I would be glad to receive specimens. My present very decided impression is, however, that none will be found, and that the first signs of the disease in the new wheat appear in the spring coincidently with the emergence of the winged Eurytoma flies from the straw and stubble of the previous year's growth.

J. L. CABELL.

University of Virginia, Sept. 24, 1852.

For the Southern Planter.

DEWS AND FROSTS.

Mr. Editor,—So intimately connected with agriculture are dews and frosts—the one favoring, the other opposed to the growth of plants—that I have presumed to trouble you with a short communication in regard to them. I write in order to induce your readers to disregard the scholastic aspect in which their connexion with science would seem to place them and to persuade them to investigate dews and frosts as the results of simple natural laws, as well as to assist them in their investigations. As the earth is not only the theatre of action for those laws, but also the observatory for ourselves of this action, we ask your indulgence while we premise a few facts, more or less connected with the matter before us. As the temperature of the earth is the prime agent in the formation of dews and frosts, we will observe that, apart from any result of chemical decomposition, temperature has two sources. One the heat radiated from the sun, the other "*sui generis*" and a peculiar property of this ball of matter. The surface of the earth, for the depth of forty feet, is warmed by the radiated heat of the sun, and its temperature is subjected to the control of atmospheric vicissitudes. At that depth, there is a stratum called the stratum of invariable temperature, that is to say, the heat is the same at that distance below ground both winter and summer. Here the influence of the sun on the earth's temperature ceases, and here commence the operations of a peculiar law, known only by its effects; for we here find that in proportion as we go deeper, in like ratio the temperature increases; and philosophy has determined a point in the bosom

of our common mother, in which it is impossible for anything to exist as solid, and has taught us the interesting fact that we live on the hardened crust of a vast ball of liquid fire. This fact we now lay aside, having mentioned it for the purpose of separating it entirely from the other source of the earth's heat, viz: the sun. But before we go farther, let us be understood as to the meaning of radiation, a term we have used, and for which we expect to have farther use. Radiation, as we use it, is that property by which a heated body gives off its heat to another contiguous body without contact with such body. It differs from reflection in this: that radiation requires that the body radiating shall itself be heated, while reflection is as complete from a cold body as from a body of raised temperature. Now the law governing radiation is this: "All bodies radiate or give off heat to surrounding bodies, and in return, receive heat from contiguous bodies." For example, suppose two bodies, A and B, to be placed contiguously; A will give off its heat to B and receive heat from B, while B will give off its heat to A and receive heat of A; if these two bodies be of equal temperature in the commencement, they will continue so; B giving to A as much heat as A gives to B; but should there be, in the commencement, an unequal temperature between the two, for instance, should B have more heat than A, then "as the radiation is always in proportion to the temperature," B would radiate to A more heat than it receives from A, and thus an equality of temperature would be established. We have been thus minute in regard to this law, because on its right understanding, depends the proper appreciation of all that follows. The sun, we have said, is the main source of the heat of the surface of the earth. Its rays radiate from it as from a common centre all over the earth, and in return, the earth radiates its heat back; but the temperature of the sun being so immensely higher than that of the earth, obediently to a law before mentioned, the earth receives more heat from the sun than it gives in return, and thus its temperature is raised; this goes on during the whole day—to the greatest extent when the sun is at meridian, for then the rays strike the earth directly and very few are reflected. Towards evening, as the rays fall obliquely, some are reflected, that is, thrown from the surface of the earth into space. The earth continuing to give off its heat more abundantly than

before, (because its temperature being raised, its radiation is greater,) necessarily has its temperature lowered; and when the sun has gone down, receiving no heat and continuing to radiate, its temperature is at last so reduced that it is lower than that of the superjacent air, which condensing as it comes in contact with the earth, deposits its vapor, held before in solution, upon those bodies which, being the best radiators, have parted with the most heat, and consequently are the most reduced in temperature. That vapor condensed, is known under the common name of "dew." Having thus mentioned the principles of its formation, we beg your indulgence while we shall name some of the peculiarities of its formation. As the most superficial observer cannot fail to have observed that often on one morning we have not a drop of dew, and on the next, have it in abundance, and may have wondered at this seeming mystery as he thinks it, we will use the principles we have just inculcated to explain this simple, yet often perplexing fact. Let us lay down some law as a criterion by which we may judge the exceptions; in other words, let us state those conditions of air, earth and sky most favorable to the forming of dew in order that we may better be able to detect any deviations from those conditions. A clear, hot day, followed by a clear, calm night, is the most favorable condition for the formation of dew. And why? Because during a clear, hot day, the rays of the sun have nothing to prevent their direct passage to the earth, and a clear, calm night offers no impediment to the rapid radiation from the earth. These being the most favorable conditions for the formation of dew, we can well see how there is no dew on a cloudy night. For this there are two reasons: first, a canopy of cloud prevents the heat, radiated from the earth, from rising; second, the clouds themselves radiate heat towards the earth at the same time that the earth is giving out its heat, and receiving heat in return for that given out the earth has not its temperature sufficiently lowered to cause the formation of dew on its surface. It is observed that no dew falls in windy nights. Why so? Because as the earth gives up its heat, it absorbs heat from the atmosphere to a sufficient extent to lead to the deposition of dew, provided the atmosphere be still. If, however, the air is in motion, the dew is evaporated, in other words, absorbed by the air as fast as it is formed. And thus

it is all of radiation and absorption on the part of the earth; nothing of condensation on the part of the air. Another reason why a hot day is favorable to the formation of dew is that evaporation goes on most rapidly on such a day, and the atmosphere receiving more vapor more easily condenses it. Again, it has been noticed that a calm night preceded by a windy day is favorable or not to the formation of dew as the wind has blown over a dry plain or a body of water. If the latter, then bringing a bountiful supply of moisture, it places the atmosphere in the best state for condensation. If over the plain, it not only does not bring any moisture, but deprives the atmosphere of a large portion of its vapor. Having thus noticed a few prominent facts we cannot refrain adverting to the beautiful harmony and order displayed in the operations of Nature. It is a universal law, so far as we know, that the property of absorption and radiation exists in a corresponding ratio. And how beautifully is this law exemplified and practically improved in Nature. What needs the most heat on the earth's surface? Growing vegetation. What the most dew? The same. And we find plants absorbing more heat and having more dew deposited on them than any other objects. And herefrom we deduce an unanswerable argument in favor of close, deep and perfect tillage. For in proportion as we make our soils porous, their power of absorption is increased. The power of absorption and radiation existing in a like ratio, in the same way their power of radiation is increased; and the deposition of dew on a surface being proportionate to the amount of radiation, as close tillage promotes absorption and radiation, it likewise causes the deposition of dew, and he who wishes this grateful drink for his thirsty plants must plough and break completely.

Frost is frozen dew, and as the above are the laws of its formation, I need say nothing more of it.

WM. HENING.

Richmond, August 31, 1852.

To KEEP OUT FROST.—Saw-dust, tan-bark, or chip-manure, either are better than any kind of soil to keep out frost. Straw and old hay of any kind are better for banking around houses in winter than loam or sand or gravel.—*Massachusetts Ploughman.*

From the Richmond Whig.

FINE VIRGINIA WOOL.

I am sure, Messrs. Editors, that whatever contributes to the improvement or honor of this "old Commonwealth of ours," will be a source of gratification to you, who have so sedulously labored for her welfare for so many years. And to show that we can, in some respects, and in some of the branches of industry, rival our sister States, I hand you an extract from the United States Economist of the 2d October. The editor of that paper says:

"We have seen a few bales of Saxony fleece (wool) at H. A. Petitbone & Co's. Beaver street, from the farm of Mr. Dox, of Nelson county, Virginia, superior to anything we have before seen. Dutchess county, New York; Washington county, Pennsylvania; and Summit county, Ohio, will have to be up and doing, or Virginia will carry the flag. We hope our Virginia friends will improve the hint thrown out some time since, (referring, I believe, to the scarcity of provender,) and come North and make a selection from some of our flocks, where the drought has destroyed so much of the fodder it will be difficult to winter them."

This was a lot of twenty-five hundred pounds of wool, sent from Nelson county to our friends, Messrs. Deane & Brown, to be sold here under limits. Forty-five cents per pound was offered for it, in cash, being "Buck Washed." That price not being equal to the expectation of the owners, it was shipped to New York, where it was seen by the editor. The sheep from which this wool was taken was a flock of nine hundred, I understand, driven from New York to Nelson county, and proves most conclusively that there is scarcely any investment so safe and profitable to our mountain farmers as the raising of sheep. No animal can live upon as little, and requires less attention than a sheep, if it has a dead pasture to roam in, or the woods of the mountains.

RICHMOND.

We know Mr. Dox very well, and saw him only a few days ago. He has been here now several years with his sheep, and thinks since they have become accustomed to our climate that they are quite as good as the Merino, commonly supposed to be a more hardy sheep.

We hope that in some short time he will give us an article on the subject, drawn from

his own experience and observation, both here and in New York, and as we endorse him in every way, we can promise in advance a good and reliable article on the subject.

The following communication was received sometime ago. We did not think the season a good one to publish it in, and we reserved it until the present time, when we hope every one can follow the advice given by the writer without interfering with other arrangements:

For the Southern Planter.

MANURES.

Mr. Editor—This is truly an important subject with the agriculturist; in proof of which we have only to bring to mind the imposing fact that thousands of dollars are annually expended for that active, generous, masterpiece, guano. Again, refer to the numberless advertisements of artificial "Manufactured Manures." A with his "Artificial Guano"—B and K have the "Prepared Guano"—C his "Fertilizer," *annually improved*—K and D bring out their "Highly Valuable Chemical Salts"—W C the "Highly Approved Pourette"—T his "Fertilizing Compound." To carry out the list would fill the greater part, if not every page in your valuable journal. All of those above can be obtained for the *hard cash*; but, alas! the farmer often finds himself in a "sad predicament"—money gone—no benefit derived from these "highly valuable manures," which are declared to contain every ingredient necessary for the production of remunerating crops; and better still, enough of these beautiful invaluable ingredients are to be left in the soil to secure a "good stand of the grasses and clover on the poorest soils;" nothing remains to carry out the improvement but the application of plaster and lime, thereby bringing the soil to a high state of fertility. It is unnecessary to affirm that these manures do not invariably give these results, as the past conclusively proves that failure as often attends their application as success. The first, guano, has especially been a source of great improvement and profit to the farmer; but to the agents, speculators and manufacturers there are no failures; *their profits are sure and enormous*. The farmer's hard earned capital is frequently lost to him, whilst the vendor and manufacturer secure their gains. The nostrums for impoverished soils are as plenty as those for the restoration of the health of the human family, and in too many instances as worthless. As farmers are engaged in the liberal use of guano and manufactured manures, the question naturally arises, have the farmers of Virginia diligently and carefully husbanded every material that can be converted into manure?

We frequently see Yankee "axe helves" and "Northern hay" advertised in our daily papers. Have we not a sufficiency of good timber that can be worked into axe helves? or are we too lazy? or is it the *beautiful crook* of the Yankee helve that "takes our eye?" Have we no soils suitable to the production of the grasses and clover? or are we deficient in energy, that we have not only to purchase axe helves and hay, but manures from the North?

The writer has made experiments with guano, resulting in complete failures and again returning remunerating crops. With fifteen dollars worth of "C. Fertilizer" I made *nothing*. I consider it a perfect humbug. Whilst farmers are engaged in the liberal use of these manures, let them not forget the quantity of materials on their right and left, that if properly collected, intimately mixed, carefully husbanded, and judiciously applied, will not only add greatly to the fertility of their lands, but fill many an "empty purse." Manures are the riches of the fields, and as stable manure contains all those substances which plants need, and as it is a settled point in agriculture that it never fails, let us first consider the means necessary to increase not only the bulk but secure and improve the quality. Horse dung rapidly accumulates in our stables; do not permit it to remain until it is two or three feet deep, and then fork it out in front of the door, exposed to the influence of sun and air, to be drenched by every fall of rain, and then cart it to the soil almost a worthless thing; but provide liberally good bedding for your horses and mules, remove every morning the dung and wet straw to an adjoining shed, erected for the sole purpose of securing your manure, there deposit it, dusting the daily removals with plaster, thereby securing the volatile particles. When you have a sufficiency to put up a good compost heap, commence it immediately *under your shed*, by placing alternately mud, woods-mould, manure and plaster, adding a strong dose of good brine (composed of one gallon of salt to eight of water,) to each layer of manure and plaster; complete the heap by covering with mud or scrapings; permit it to remain so until a slight fermentation takes place, then cut down the heap with sharp billling hoes, thereby intimately mixing the materials, cart it on the land intended for cultivation, covering it with the plough as fast as it is *regularly spread*. An excess of fermentation should be avoided in the heap; the *soil* is the *place for it to take place*, as the volatile and soluble particles are there secured for the wants of the crop. The mud and mould add to the bulk whilst they do not injure the quality of the heap; the plaster arrests and fixes the escaping ammonia; the brine will destroy the enemies of our crops. Manure of this kind should be laid on moist, tenacious soils, the faults of which it corrects, while at the same time the soil checks the too violent action of the manure; on the other hand, if applied to dry sandy soils, it then forces and stimulates the

growth of plants so much in the early stages of their development, that when the action ceases, the process of vegetation becomes feeble.

Barn-yard Manure.—Many farmers barely secure the droppings of their cattle, whilst others, with an eye to the comfort of their stock, and the securing and increasing of the manure, erect good sheds, liberally provide bedding, by carting corn-stalks, leaves, straw and scrapings in the yard; frequently applying plaster, with a heavy hand, over the contents of the barn-yard. This manure is peculiarly adapted to dry warm soils.

Sheep Dung.—Alas! how few of the farmers of Virginia make any provision whatever for increasing and securing this truly valuable fertilizer. The sheepfold should have regularly carted in either straw or leaves, good sheds erected, open to the south; here use plaster, salt, or pulverized charcoal over the litter. This manure is exclusively adapted to moist, cold, tenacious soils, as it often proves injurious to dry, warm soils, if applied in large quantities; yet it may be laid on moist, tenacious lands in large quantities without occasioning any inconveniences whatever.

Hog Manure.—What a vast quantity is to be seen completely thrown away. To render the hog more valuable, he should be either kept in a close pen, which should be regularly littered and cleansed through the year, or if the farmer prefers his "having the range," lay off and fence in one or two acres in your field or fallow, cart in leaves and scrapings regularly, here feed your hogs, shut them up at night, let them remain few hours in the morning after feeding, and you will not only secure a goodly number from the clutches of the rogue, but you will also get a great deal of excellent manure. When taken up to fatten, put up in good floored pens, provide plentifully mud, scrapings, litter, leaves, &c.; clean out weekly; put up a compost by mixing with woods-mould and plaster. When your hogs come to the knife, they will nearly have paid in good manure for the food consumed. This manure acts more advantageously on warm soils. Now secure the contents of the privy; cart woods-mould and leaves to a *log pen* at every negro cabin, and require them to empty all the dish water, contents of chambers, soapsuds, ashes, sweepings of the houses and yards, spreading with a bountiful hand plaster two or three times a week on the contents of these pens, and if you cannot secure enough manure to apply *liberally broadcast* to every acre of cultivated soil, then purchase, if you have the capital. Always remembering that lime must form the basis of all improvement, without which no permanent improvement can be effected.

Your obedient servant,

T. E. B.

Sussex county, Virginia.

For the Southern Planter.

DIALOGUE.

Mr. P. D. BERNARD: *Dear Sir,—One of the oldest subscribers to the Southern Planter offers his congratulations on the prospect which appears to be opening, of a living reward to your patient and faithful labors. I rejoice to see that the agriculturists of Virginia are awaking (slowly though it be) to some sense of justice to you and to themselves. But your subscription list is yet ten or fifteen thousand short of what it ought to be; and the farmers and planters of the State will, I trust, esteem it a duty and a pleasure to add speedily as many more names as can be obtained. If each one of them will do what he can, the work will soon be accomplished.*

Circumstances not necessary to mention, have made me acquainted with every prominent agricultural journal published in the United States, and I do not hesitate to say that the Southern Planter is now worth more to us than all of them together. Yet more money is sent out of the State every year to pay subscriptions to them than would support your paper, which has probably not one dozen subscribers north of the Potomac. We complain of being tributary to the North; but in this as in other things the tribute is voluntary. When will our people be true to themselves? Not long since, I met with a young farmer and we were joined soon after by an old farmer—one of the best too, and one of the best men in the county—when the following conversation ensued:

Young Farmer. "Good morning Mr. A.; I am glad to meet with you—having reflected much on your maxim that every farmer should aim first at producing all that the consumption of his farm requires, as far as may be, and among other things an endeavoring to raise my own pork. What was the paper you advised me to take to aid and improve me in this and other matters of farm management?

Old Farmer. The —, by all means (naming a Northern agricultural journal.)

Subscriber. Why, Mr. A. I thought you took the Southern Planter, and so must have seen the excellent article entitled "A dollar's worth about hogs." It is well worth twenty years' subscription.

Old Farmer. I did take the Southern Planter. You were kind enough to subscribe to it for me some time ago, and I liked it very well; but somehow I let the subscription run out, and afterwards the other paper was recommended to me, and I took that; consequently have not seen the article you refer to.

Subscriber. Well, Mr. A. permit me to inquire whether you have found your advantage in the change of papers?

Old Farmer. I don't know, never thought much about it. Those Northern folks are so

smart, and their papers have so many little articles about every thing, it is quite entertaining.

Subscriber. But have you found any of those amusing little articles, or anything else in the paper of practical value? has it improved your system of farming, your land, or your crops?

Old Farmer. Can't say that I have, never thought much about it. Many of the things recommended are not calculated for us—have tried some of the experiments, but did not get paid for it—have sent on and bought some of their famous ploughs and other implements, but have not found them better than those we have at home, though they cost me a good deal more—so I am just jogging on in the old track.

Subscriber. You are not aware then that the Southern Planter is now edited by a practical Virginia farmer—sustained by contributions of the ablest and most distinguished agriculturists in this State or the United States. That every page of it contains matter for home consumption, together with whatever can be gleaned from Northern journals of any value to us; and yet that it has probably not as many Virginia subscribers, and send their money out of the State for other papers?

Old Farmer. No, I know nothing about it, never thought of it; but I feel that I have not done justice to my State, the paper, or myself, and when my subscription runs out, I'll go back to it.

Subscriber. Why not do it now? one more dollar will not hurt you—you have sent many out of the State; keep them in future here, and get the benefit as soon as possible of the valuable articles in the Planter.

Old Farmer. I will do so, and without delay.

Subscriber, to the Young Farmer. Let me now, as a friend and neighbor, appeal first to your interest and then to your State pride, in the choice of a paper. I am going to Richmond and will be the bearer of your dollar to the Southern Planter; and farther, if at the end of the year you are not more than satisfied with it, I pledge myself to refund the subscription I have induced you to make.

Young Farmer. I thank you, and will do what I now see is the duty and the interest of a Virginia farmer—here is my dollar without condition. We have so long paid tribute to our Northern brethren that the habit has become a sort of second nature. If they were to "offer us wooden negroes for sale, I verily believe our people would buy them."

I have given you substantially what occurred with three Virginia farmers, and have no doubt that like the old one of the party, most of those who give a preference to the Northern journals—never think about it.

AN OLD SUBSCRIBER.

Henrico, October, 1852.



THE SOUTHERN PLANTER.

RICHMOND, NOVEMBER, 1852.

TERMS.

ONE DOLLAR and TWENTY-FIVE CENTS per annum, which may be discharged by the payment of ONE DOLLAR only, if paid in office or sent free of postage within six months from the date of subscription. Six copies for FIVE DOLLARS; thirteen copies for TEN DOLLARS, to be paid invariably in advance.

☞ Subscriptions may begin with any No. **☞** No paper will be discontinued, until all arrearages are paid, except at the option of the Publisher.

☞ Office on Twelfth, between Main and Cary Streets.

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The following are the rates of postage on the Planter, *per quarter*, for the distances annexed—to be paid quarterly in advance:

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☞ Communications for the Southern Planter, upon *other than business matters*, may be addressed to the Editor, FRANK G. RUFFIN, Esq. at Shadwell, Albemarle Co., Va., which will insure their being more speedily attended to.

BUSINESS LETTERS will be directed as heretofore to "The Southern Planter," Richmond, Va.

☞ Postage prepaid in all cases.

TIMELY WARNING.

All subscribers who do not order a discontinuance before the commencement of the new year or volume, will be considered as desiring a continuance of their papers, and charged accordingly.

PREMIUM CROPS OF WHEAT.

When we read in the "Rural New Yorker" the annexed statement of the premium wheat crops of its State, it occurred to us that our friend John Marshall, Esq. of Fauquier, had exceeded the two last crops mentioned. It will be seen by his letter, which follows the extracted article, that we were right in our supposition, and that when the very much less expense of cultivation and harvesting is considered, he will appear not to be far behind Mr. Hotchkiss himself, whose crop is truly said by the Editor of the Rural New Yorker to be one of the most remarkable and profitable on record, though undoubtedly made at a very heavy expense.

Mr. Marshall says that he does not consider his crop at all remarkable for his section of country—a very fine district it is—and we do not cite it as such, but only to show that what our good farmers regard as good cropping seems to be rewarded with second and third premiums at the North:

"WHEAT CULTURE.—PREMIUM CROPS.—Those of our readers who have not ready access to the last volume of the 'Transactions of the New York State Agricultural Society,' may be benefited by a summary of the premium wheat crops therein reported, and a condensed account of the valuable statements of the mode of culture which resulted in their production. And, to none of our farming friends will it be without interest to review the practice pursued by several of our most successful farmers, in growing the great staple crop of this section of the country.

"The first premium of \$20, was awarded to William Hotchkiss of Lewiston, Niagara county, for six and three-fourths acres of wheat, harvested in 1850, averaging sixty-three and one-half bushels per acre. The soil upon which it grew is described as mostly black loam; the remainder, from one to two acres, of a gravelly soil. The previous crop raised on the field was wheat, harvested in 1848, yielding about twenty bushels per acre—no manure was given for several years previous, except what was furnished by breaking up the clover meadow which occupied the ground, and the wash from the public road which lies above it.

"This field was first ploughed in the fall of 1848, then cultivated and harrowed in June, 1849, and cross ploughed and harrowed again in August. Then upon two and a half acres at the west and gravelly part of the lot, fifty loads of well rotted barn-yard manure were applied and ploughed in, in six-pace lands, the last of August. Forty bushels of slaked

lime were then spread over the field and thoroughly harrowed in. The quantity of seed sown, was two bushels per acre. It was drilled in on the seventh of September, and the field was then furrowed out and the water courses kept clear through the season. The yield, as before stated, was $63\frac{1}{2}$ bushels per acre, or $385\frac{1}{2}$ bushels for the whole field. The net value of the wheat was \$1 per bushel, and the expense of cultivation, exclusive of manure, lime and seed, is estimated by Mr. H. at \$47 05, and at a wide estimate for these, a profit is shown of more than \$250 on the whole crop. The Soule's variety of wheat was grown in this instance.

"This, on the whole, is one of the most remarkable and profitable crops of which we have any record.

"The second premium of \$15, was awarded to S. L. Thompson of Setauket, Long Island, for forty-four bushels and twenty-four quarts per acre of Australian wheat. The field (of two acres) was a sandy loam, somewhat exhausted by previous cropping. The crops previous to the wheat were two crops of corn manured in the hill, followed by oats without manure. Thirty loads of barn-yard manure, and one hundred and fifty pounds of Peruvian guano, were applied per acre; and a bushel and twelve quarts of golden Australian wheat, sown broad-east, on the 23d of September, 1819, and harrowed in. The yield was as above stated, but a measured bushel of the grain weighed $63\frac{1}{2}$ pounds, and the estimate is made by weight. The expense of cultivating the crop, seed, manure, &c. included, was \$19 82 $\frac{1}{2}$ per acre. The wheat was sold for seed at \$5 per bushel, and the straw was worth \$5 per acre. At the market price, \$1 25 per bushel, the profit on the crop would amount to only about \$20 per acre, but an allowance should be made for unexhausted manure which would benefit succeeding crops.

"The third premium of \$5, was awarded to Justus White of Jefferson county, on four acres of Genesee Bald wheat, producing forty and one-half bushels per acre. His land was a black, gravelly soil, ploughed three times and well harrowed,—manured with twenty-five bushels of barn-yard manure per acre, ploughed in at the second ploughing. Two bushels of seed were sown per acre on the 4th of September, 1819, broad-east and harrowed in, harvested on the 25th of July, and yielding at the rate above stated. The expense account is rather imperfectly made out, so that we cannot find any calculations of comparative profit on the result.

"The wheat drilled in gave the largest yield. The limed land gave the greatest product. Here is one argument in favor of drilling in wheat, and of the application of lime to the soil, and many other instances could be brought to substantiate their value. Rich, well manured soils, and thorough preparation and culture, are required to produce large and profitable

crops of this, or any other agricultural product. Let the lesson be heeded by those who would live by the plough."

Oak Hill, Fauquier, Oct. 8, 1852.

F. G. RUFFIN, Esq.—Dear Sir,—I owe you an apology for delaying so long to answer your communication of the 2d of September. While it affords me pleasure to furnish you a statement of the yield of my crop of wheat to which you allude, permit me to say that I do not consider it remarkable for this region of country, and that I deserve no particular commendation for the result. Without further preliminaries, I proceed, in as few words as possible, to the subject in hand.

The field (a good clover lay of two years' standing) was broken in August, 1850, with heavy three-horse barshare ploughs which turned the ground to an average depth of from 7 to 8 inches, throwing a beautiful furrow of 14 inches width. The ground, without having been previously harrowed, except in a few cloudy places, was then laid off in 18 feet parallel lands at an acute angle with the original ploughing, and the wheat put in,—the north-western sides of the hills with keen double shovels,—and the residue with heavy harrows and carefully lapped. The wheat sown upon about thirty-four acres of the field was nicely cleaned *blue-stem white*. That sown upon the remaining six acres was the old fashioned *purple straw*;—both at the rate of two bushels to the acre. The seeding was finished on the 11th, having been commenced on the 8th of October.

The following year, as soon as practicable after harvest, it was ricked carefully; and in the fall, upon being threshed, it was found that 34 acres of blue-stem white wheat yielded, *in the rough*, that is, after running it once through the fan and heaping the half bushel, just 900 bushels of beautiful bright wheat which weighed in the mill, after one more cleaning, 64 lbs. to the bushel. The yield of purple-straw wheat, from the residue of the field, estimated years ago, by my father who was an accurate practical surveyor, at six acres, was 267 bushels, in the rough, (or $47\frac{1}{2}$ bushels of sixty pounds weight.) It is proper to remark here, however, that this six acres was some of the richest land in the field, but had had only a few ox cart loads of stable manure put upon it immediately preceding the seeding of the crop. The aggregate yield, therefore, (1167 bushels on 40 acres) will be found to have been about 29 bushels to the acre; but owing to the fine quality of the wheat, it turned out, in the mill, *by weight*, a fraction over $29\frac{1}{2}$ bushels to the acre. The field was not gleaned. I think I may safely put the yield, therefore, at 30 bushels per acre for the entire 40 acres.

As to the previous treatment of the land, I will add that it had been in a regular course of cultivation for years;—that no guano had been applied to it; and only about one hun-

dred ox-cart loads of stable and farm-pen manure previous to the original ploughing. The clover-lay was allowed to mature itself properly before any stock at all were turned upon it; and then a sufficient number of cattle were put upon it *to trample the clover and consolidate the ground* in a time much shorter than would have been required for the same number *to have grazed it off*. Three pecks of plaster of Paris to the acre had been sown on the land in the spring of 1850; but *none* was sown either with the wheat, or *upon* it.

I have now given you, according to your request, a statement of the yield of wheat on the field you allude to, and of the course of treatment and cultivation which conduced to its production; and when at leisure, it will give me pleasure to communicate with you, again, upon agricultural subjects.

Very truly yours,

JOHN MARSHALL.

AN EXPERIMENT IN STALL FEEDING.

A friend in Loudoun has requested us to republish the account of an experiment in stall feeding made by us in 1818, and reported to the Hole and Corner Club of Albemarle. We give it below; and will add to what is there stated that we have other records of similar experiments carefully conducted which sustain the conclusions of the one here given in regard to the comparatively small quantity of food required to fatten animals so treated.— We will further state that on one occasion we selected the best ten of a lot of thirty-two beefeves, and put them in an open enclosure with the choice of a good shelter in the mouth of November, they being intended for immediate consumption, two a week. The balance were housed as usual. When we had killed out six of the ten the order of the remainder had become so inferior as compared with the house-fed beasts, that we were compelled to resort to them for our supply, putting in a pair of the four once a week in place of a pair removed from the house. And, what may be deemed very remarkable, and a conclusive proof of the superiority of house-feeding over field-feeding, the four, though "tops" when separated, had so fallen off as to be unfit to kill until the middle of March, and were even then very decidedly the "tail" of the house-fed lot.

We do not say that this mode of feeding is the best under all circumstances. Cattle are said to "drift" more in consequence of the

confinement, though we are not certain of the fact; and the price of labor, the distance to which the corn has to be hauled for grinding, the expense of getting out the manure and other more or less obvious considerations must decide the question for each man. But we do not hesitate to affirm that it is the mode to make the most beef out of the least food, and well worth trying by the stall-feeders in Loudoun and Fauquier.

A REPORT ON THE FEEDING AND SALE OF EIGHTEEN BEEVES,

Made to the Hole and Corner Club, No. 1, of Albemarle, by request.

Stock cattle were so high last year in the Valley and the mountains beyond, that I determined to procure my supply at home. I bought accordingly thirty-three bullocks, of various sizes and ages, at prices ranging from \$8 to \$24, the whole averaging \$13 22. Besides these, I had six of my own, making a total of thirty-nine. One I killed, and selected eighteen of the rest to stall feed for the early spring market. I averaged the eighteen at \$16 16 $\frac{2}{3}$. I could not afford to pay for building the stable to accommodate them; and owing to the backwardness of my wheat seeding, and to an unusually heavy crop of corn, on a much larger surface too than I commonly till, it was so late before I could commence building it with my own hands, that it was not finished till the 15th of December. So that my cattle ran out until that time, and when housed they were all losing flesh, a very unfavorable circumstance; some of them were quite thin, and only a few fat enough for my purpose. But I was encouraged to feed them by the cheapness of grain and the low price at which they were bought, and by confidence in the mode of feeding I proposed to adopt.

In stall feeding I consider that perfect quiet is necessary; that each bullock should have a spacious stall to himself, which, when once put up, he should never be permitted to leave, until two or three days before setting out to market; that light and cold should be excluded; an abundance of fresh water be always at hand in a trough; the most rigorous punctuality both as to time and quantity exacted in feeding; the stall kept well littered, both for warmth and cleanliness, and to make manure; the food removed as soon as he has finished his meal; and the trough kept sweet and clean. I complied with these requisites except in one particular; the plank of the stable was nailed on perpendicularly, and being green large cracks were left between each plank, and there was no loft: this made it much too light and cold.

At the end of eighty-four days nine of them

were sent to Richmond and sold at \$7 50 per cwt. net; they weighed 647 7-9 lbs. Twenty-eight days afterwards the other nine were sent to Washington and sold at the same price; they weighed 556 $\frac{1}{2}$ lbs.

Classing them in lots, as they were sold, I submit the following statements—first, of their consumption; and second, of the cost and profit of the whole operation:

DAYS.	<i>First Lot of nine, fed eighty-four days, as follows:</i>			
65	1 $\frac{1}{4}$ bushels of corn meal per day	{ i. e. 2 wine gallons to flat seed meal per day	11 $\frac{1}{2}$ bushels of the mixture	113 12-16 bus.
65	1 $\frac{1}{4}$ " " corn meal	{ 1 $\frac{1}{2}$ gallons to each of the mixture,	21 15-16 "	16 4-16 "
19	1 5-16 " flat seed meal	{ 1 $\frac{1}{2}$ gallons to each of the mixture,	3 9-16 "	21 15-16 "
19	3-16 " flat seed meal	{ 1 gallon to each,	84 "	3 9-16 "
84	1 " wheat bran	"	-	-
84	6 $\frac{1}{4}$ " turnips, pumpkins and cabbages, per day, 3 pecks to each, -	-	-	567 "
46	shucks, top-fodder and wheat chaff at discretion.	-	-	-
38	90 lbs. of sheaf oats per day, 10 lbs. to each, -	-	-	3420 "
<i>Second Lot of nine, fed as above for eighty-four days, afterwards as follows:</i>				
28	1 5-16 bushels of corn meal per day	{ 1 $\frac{1}{2}$ gallons of the mix- ture to each,	36 12-16 bus.	5 4-16 "
28	3-16 " flat seed meal per day	"	28 "	28 "
28	1 " wheat bran	"	-	-
28	6 $\frac{1}{4}$ " green food	" as above,	189 "	189 "
28	90 lbs. of sheaf oats, -	-	-	2520 lbs.

I kept no account of the long food given them except the oats. Not having any hay, it consisted entirely of shucks, tops and chaff, for forty-six days, when I commenced giving them sheaf oats, gradually at first, and increasing it as they showed less appetite for the shucks, &c. The oats were somewhat damaged, and I have charged more than I think they ate, because in making a statement which may influence others, it is proper to make it *against myself*.

Their long food was chopped fine and sprinkled with the meal and bran in the trough. The green food was cut up also. The meal and flax seed were ground together in the proportion of one to seven. The remnant of each feed was given to my work oxen, and paid them for hauling the litter.

The shucks, tops and chaff are not charged against them, because they are worth no money. The labor of having the corn ground is offset by the difference in favor of the meal; and that of making the turnips by the superior tilth of the land that produced them, its better take in clover, and the probable increase in the crop of oats now growing upon it. The pumpkins grew in my corn field, and cost nothing; and enough were fed to hogs to pay for gathering and storing. The value of the cabbages is estimated according to the supposed product of the land in corn, say 12 barrels, worth \$24, less the value of cabbages sold, or \$15, which makes them worth \$9, which sum, for convenience, I shall divide between the two lots. The hand that attended them I have charged at a hire of \$6 per month, a reasonable rate for the season of the year.

With this explanation, I proceed to state an account with each lot.

First lot of nine beef cattle in account with F. G. R. 1848.

April 1.	To gross sale at Richmond, \$429 30
	To 44 loads (ox-cart with 4 steers) manure, at \$1 per load, - - - - 44 00
	473 30

By purchase money, \$183,	
and interest from 1st of October, 1847, five months, \$4 57 $\frac{1}{2}$,	\$187 57 $\frac{1}{2}$
By expenses attending sale, 26 45	214 02 $\frac{1}{2}$
By 130 11-16 bushels, say 27 $\frac{1}{2}$ barrels corn at \$2 per bbl.	55 00
By 20 bushels flax seed at 90 cents per bushel, -	18 00
By 84 bushels wheat bran at 6 $\frac{1}{4}$ cents per bushel, -	5 25
By 567 bushels green food, explained above, -	4 50
By 3420 lbs. oats at 40 cents per cwt. - - - - 13 68	
By salt, - - - - 1 25	
By hire of hand at \$6 per month, half paid by this lot, - - - - 9 00	
To balance, - - - - 106 68	
To balance, - - - - 153 59 $\frac{1}{4}$	

Second lot of nine beef cattle in acc't with F. G. R.

April 24.	To gross sales at Washington, - - - - \$375 33
	To 65 loads (size as above) of manure, - - - - 65 00
	440 38
By expenses attending sale, \$52 92	
By purchase money, \$108, and \$3 24, six months interest on same, - - - - 111 24	
	164 16

By 175 7-16 bus. say 35 1-10 barrels of corn, at \$2 per barrel,	\$70 20
By 25 bushels flax seed, at 90 cents per bushel,	22 50
By 112 bushels wheat bran at 6½ cents,	7 00
By 5940 lbs. of oats, at 40 cts. per cwt.	23 76
By 756 bushels green food, By hire of hand as above, half of last month given to other cattle,	4 50
By salt,	12 00
	1 75
	<hr/> 141 71
To balance,	<hr/> \$134 51

Thus it appears that I have made \$288 clear money on the whole operation, or \$177 (an average clear profit of \$9 28) over and above the manure, which is generally considered to be of itself a sufficient remuneration for stall feeding. This large balance is partly due to the low price of grain, and partly to the cheapness of my cattle. The feeding I think was heavy, but rendered necessary by the incompleteness of the house, the comparatively low order of the cattle, and the short time I had to get them fat. I believe that if I had put them up fat, and fed them from the 1st of November in a warm house, that I would have had better beef, and saved one-third of their food.

The whole lot was in fine order, and I learned, accidentally, that the butchers thought they had much less offal about them than usual—a fact doubtless attributable to the mode of feeding.

In conclusion, I will say, that to sell well we must not rely upon good luck or an open market. The only safe reliance is on the order of our stock. They must be fat enough to command their value.

All which is respectfully submitted.

FRANK: G. RUFFIN.

May 20, 1848.

For the Southern Planter.

GRASSHOPPERS—MANURES—SUB-SOIL PLOUGHS.

Mr. Editor,—I desire to occupy a corner of the Planter, to make an inquiry and an observation or two. Some of my neighbors' farms, as well as our own, have suffered to a most serious extent this summer with grasshoppers—vegetation on some being entirely stripped off, and the roots of much of it killed. Have you ever read or heard of any remedy for this evil? I have observed that they make their appearance generally about that part of a

farm nearest to wood land, where I am inclined to think the egg is deposited and protected by the leaves from the cold; they hatch early in summer, and commence their forays on the neighboring fields. I have believed that some protection might be had, to select a suitable time in the spring, and have the leaves carefully raked from the fencing, and set on fire for a space into the woods deemed sufficient. The eggs, or it may be the young insects, might in this way be destroyed—at any rate the experiment is worthy of a trial.

On the subject of manures, I beg leave to say my observation concurs with the experience of I. D. in the June number of the Planter, of the *greater* benefit to be derived from the application of fresh manures to the surface, whether of grass or wheat. It does not matter either in my opinion as to the season at which the application may be made, whether in mid-summer, fall or winter. The fertilizing properties of the manure seem to be absorbed by the earth, and their effects are very soon visible on the crops. There is less loss by evaporation than the casual observer might suppose. How much we might do to add to the quantity of manures, if we would take a moderate share of pains. I have for some time believed that the *very best* expenditure any farmer can make would be to employ a reliable hand with a horse and cart *all the year*, in collecting materiel for the manure heap. How many hundred loads, think you, could be collected in this way? I think that *eight* cart loads per day could easily be made on a farm of three or four hundred acres. Allowing three hundred and ten days, you would have two thousand four hundred and eighty cart loads—or four cart loads to an ordinary two-horse load, you would have twelve hundred and forty loads worth, may I not safely say, *one dollar* per load. But for the sake of perfect fairness in the estimate, put it at three shillings, you will have six hundred and twenty dollars' worth of manure. Now put the hire of the hand, cost of horse and cart, board of hand, and feed, &c. of horse at the most liberal sum you choose, and say three hundred dollars, and see the profits derived. But it is not in the *intrinsic* value of the manure made in this way, but in the effects it will have, not only on those and about your own farm, but on others, in seeing the *benefits* resulting from economy of small things that are all wasted about our houses and on the farm—viz: the soapsuds, the brine, and chamber

lye, the ashes, the scrapings of the hennery, the noxious weeds taken off in time and put in the heap, the night soil, the scrapings of the hog-stye, of fence corners, ditch banks, leaves, rotten wood, residue of coal pits, and an innumerable variety of other sources, would amount in the aggregate to a bulk that would stagger belief. *I intend, Mr. Planter, to try it*, and Providence permitting, will at the end of the year give you the *result* of my labors. Query, What are the cheapest acids to decompose bones? Is there *anything* will act upon old leather to render it a food for plants? The cleaning of our saddler and shoe-maker shops accumulate much in a year.

Permit me to say that in my humble judgment the *subsoil* plough is destined to do much in the Valley of Virginia to improve our lands. Will our farmers try it? It is the *cheapest* plough, at *double* the cost, of any other. There is no doubt of it. I have tested the "Cast Steel Extending Point" Subsoil Plough of C. B. Rogers, of Philadelphia, and can *honestly* recommend it as a most admirable one—and with its extending point, the *cheapest* that I have seen. I would advise the use of the wheel. I have recommended to him to have them made *heavier* for our region. The No. 1 size is preferable. I did not intend to say so much when I took my pen.

With my best wishes for your success in improving *Virginia* agriculture,

I am, very truly, your friend,

J. MARSHALL McCUE.

Augusta County.

Grasshoppers.—The means of destroying them are somewhat too refined for our agriculture, and would be useless unless more than one person should adopt them. The fields are sometimes drawn over with a sheet elevated at the hinder end, and the insects thus caught are let into a bag every few rods, or as the sheet gets full, and killed by letting the bag into boiling water, which cooks them very nicely for the hogs. But with us they will rarely so abound as to make it necessary to resort to this plan; and their natural enemies will generally destroy them. All birds and fowls, particularly turkeys, are very destructive to them.

To decompose bones, sulphuric acid is the cheapest. It sells by the pound, is very heavy, and the price is much greater inland than in any of the large cities. It will probably cost

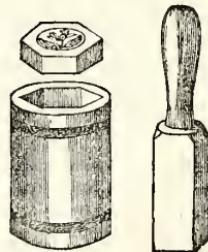
in Augusta about six cents per pound, though worth in Baltimore only two or three cents.

Professor Norton, as good authority as any, gives the following mode of applying it: to every one hundred pounds of bones, about fifty or sixty of acid are taken; if bone *dust* is used, from twenty-five to forty-five pounds of acid is sufficient. The acid must be mixed with two or three times its bulk of water, because if applied strong it would only burn and blacken the bones without dissolving them.

The bones are placed in a tub, and a portion of the previously diluted acid poured upon them. After standing a day, another portion of acid may be poured on; and finally the last on the third day, if they are not already dissolved. The mass should be often stirred.

The bones will ultimately soften and dissolve to a kind of paste. It is then mixed sometimes with water, but preferably with a large quantity of ashes, peat earth, sawdust or charcoal dust, or even common earth, and it is then applied with or without other manure at the rate of three bushels per acre of the dissolved bones. If other manure is applied it is estimated that half the usual quantity only will be required.

THE SIX SQUARE-BUTTER MOULD.



The above cut represents D. Perry's latest improved Six-Square Butter Mould. This mould is larger at the top than at the bottom, so that the butter leaves it easily, a part being turned out on the outside, making it smaller in diameter and better to hold in the hand; and by turning out the three screws in the lower end a little, as legs to stand on, it is made to hold exactly one pound of butter. In using this mould never let it be washed in water, but soaked in strong brine, kept in a clean vessel for that purpose. Have your butter as hard as it will work well; place the stamp in the bottom, on the end that has the screws in it, put it one-quarter full, and press it down

on every square with the handle; repeat until full, and turn the mould the other end up—place the handle on the stamp and press out the butter. More butter can be packed in a round box with six-square lumps than in any other shape, and ten pounds can be put up while one could be without it. Sold wholesale and retail by D. Prouty & Co. 19 North Market street, Boston, with a new article for making and stamping butter for family use.

We procured one of the above described butter moulds from D. Prouty & Co. and think them well adapted to their purpose. They are above five inches high by three wide, and those who send butter to market would do well to get one. At least we have obtained one for that purpose. They can be had through Mr. James P. Tyler, Family Grocer and Commission Merchant, corner of Cary and Twelfth streets, who is one of the largest butter dealers of this city.

For the Southern Planter.

JERUSALEM ARTICHOKE.

Mr. Editor,—Some inquiry having been made as to the value of the artichoke as food for hogs, I will, at your request, freely give my observation and experience (though limited) on the culture and mode of feeding.

The Jerusalem artichoke has been long known in this part of the country as an esculent, and I have known it planted in our seaboard country as food for hogs; but whether found profitable or not, I am not able to say.

Some twelve or fifteen years since, Mr. William D. Meriwether, Sr. obtained from Tennessee three bushels of artichokes, differing from the root we had known before, in form, color, and productiveness. This root was long, (like the strings of the sweet potato) of a pale yellow color, and amazingly productive. When first planted, the land was prepared as for corn, and planted early in April. The drills being laid off three and a half feet apart, and the roots laid along the drills without much regard to distance, only taking care to have them near enough, and covered with a light plough; the plant soon came up and was ploughed once in May with a one horse plough—a cultivator was used some time after to smooth the surface left by the plough, and no other cultivation. I saw a part of this plantation dug sometime during the succeeding winter—many cart loads were hauled off and placed on a plank floor to be fed to the hogs. After all were gathered that could well be collected by ploughing the ground and using rakes after the plough, the hogs were then allowed free access to the lot. It was found, however, that the digging and housing did not an-

swer well, as the loss was very great in shrinkage from so succulent a root. So much for my observation. I will now give my experience on the same subject. I used the artichoke for several winters, and I thought with good purpose to aid in keeping my stock of hogs. The second year after planting I found the roots extending throughout the rows. The hogs had a range of wood land and were permitted to go into the lot at all times after the first of December, except when the ground was very wet; as I soon found if they were allowed the use of the lot in wet weather, that they packed the ground and made it more difficult afterwards to get at the roots with their snouts. I also found that they were much aided in their feeding by coultering the whole lot now and then when it seemed to be getting too close for their operations. Planting once I think will answer for a number of years. The hogs should be taken off by the middle of March, and it will be found that the young plants will begin to appear towards the latter part of that month, should the weather be mild. Soon after this the ploughs may be used in breaking up the land, leaving strips unbroken and in rows as they were first planted. In this way the same lot may be used for a number of years. I do not think it is an exhauster, as the stalks and leaves are all returned to the ground trampled and well broken up by the hogs during the winter. My habit is to have my hogs fed twice a day during winter, (morning and evening,) and I think when I used the artichoke, about half the usual quantity of corn was given them, and their condition was better than it had been in previous winters with the double feed of corn. It was said when I first used this root that it would not answer for the sows suckling pigs—this idea, however, is not confirmed by my experience, as I tried them on the lot and they were improved in condition.

It has been urged as an objection to the artichoke, that once fixed in the ground it could not be eradicated. I have not found it so. The cattle are fond of the tops at all times before the frost kills them; and with the hogs at the roots and the cattle at the tops, they can never prove a pest. For a year or two past I have not kept up my lot, and the only reason I can give for it is, that everlasting excuse, too much trouble.

F. K. NELSON.

Albemarle, October 11, 1852.

As a feeding crop, the artichoke has been compared with the potato, producing about double as much *in weight* per acre, and it has been a question how far it may be substituted therefor since the rot has proved so destructive. From an analysis of it by Dr. Salisbury, which we find in the Transactions of the New York State Agricultural Society for 1850, it seems that "the artichoke contains much less starch than the potato, but is richer in sugar, dextrine,

albumen and casein. Its power for fattening, perhaps, would not equal that of the potato, but in muscle, nerve, &c. forming products or nitrogenous bodies, its composition would place it quite equal to that of the potato. The analysis shows it to be even richer." If this be so, it would be a very good thing on the proper sort of land for store hogs, or those kept through the winter for the next year's killing. What that sort of land is we cannot in all cases determine, but would think them a suitable crop on soils that will not bake from being rooted up in the winter. Such for instance as the sandy flats of the Mattaponi and the sandy lands of King and Queen, Essex, and other counties in that region. We made trial of them several years ago, but as our land changes to glue when it rains we abandoned the crop after one season.

Boussingault tried them as a food for horses, and found by two well conducted experiments that, in the proportion of thirty pounds of artichokes for eleven pounds of hay, they were a full equivalent for half the usual feed of hay. As they are very watery, containing some eighty per cent. of water, which is more than potatoes do, it would not do to give them in larger proportion, if in our country it would do to give them at all.

FORMIDABLE LOSSES.

Every farmer who understands common arithmetic, may amuse and instruct himself with great advantage by a few interesting calculations. Successful tillage, as every one knows, consists in three important particulars, namely, a good soil—its fertility made accessible; and the entire monopoly of that fertility by the crop intended. A soil may consist of the most valuable ingredients, but if these are kept immersed in a subterranean basin of water, as in many undrained soils during every wet season, they are as inaccessible to the plant, as if encased in walls of masonry. A hard, uncrumbled soil is little better. But the greatest absurdity in farming, is to expend five or ten thousand dollars in the purchase of land, some hundreds more in fitting it for prolific crops, and then permitting one-fourth, one-third, or even one-half its costly value to be drawn out and destroyed by the growth of useless weeds!

We have known men who were exceed-

ingly jealous of "their rights." Rather than be defrauded of a half dollar, they would rush into a law-suit costing twenty times that sum. Rather than lose "the best end of a bargain," they would resort to a great many very inconvenient and troublesome expedients. Rather than submit to furnish a neighbor's lawless hog with a single meal of undug potatoes, they would incur perpetual resentment. But strange things have not come to an end, for these are the very same men that submit with most admirable patience to the invasion and waste of thousands of elder bushes and burdocks, tens of thousands of mulleins and horse-thistles, and a hundred thousand Canada thistles, and a million red-root plants.

Now, the calculations we are about to propose, as above alluded to, are these: Let every land-owner, whose fences are lined with a belt of elders, burdocks, and briars, ascertain by weighing, the precise amount of vegetable growth yielded by these three plants on a square yard of land; multiplying by thirty will give the weight on a square rod. Then let him make a fair estimate of the amount of land thus occupied along all the miles of his fence, and he may soon know how many tons of elder bushes, briars and burdocks, his costly land grows in a year. It would of course be quite as well for him to have this growth in clover, timothy, or Indian corn—but before throwing the calculation aside, let him ask himself, if he would not feel somewhat indignant should his neighbor's cattle fall upon and devour an equal number of tons from his meadow or corn field. Now, cannot he contrive to get up a like amount of indignation against the weeds? The same kind of calculation may be applied on the same farm, to the Canada thistles, horse-thistles, Johnswort, pig-weeds, mulleins, mustard and fox-tail grass, which grow in various degrees of denseness broadcast over the fields. We cannot but think that on some farms it would present rather startling results.

It would be an interesting inquiry to look into the actual losses sustained through the whole country by the growth of weeds. How many tons on an average are grown by each of the million farmers of the United States? Three—five—or ten? If the former only, the aggregate crop would be enough to load a continued train of farm wagons three thousand miles long—or twenty thousand canal boats—or more than ten times all the whale ships belong-

ing to the country, with this useless herbage. A single weed—the red-root—has been estimated to have occasioned greater loss in some counties than if every dwelling house had been consumed by fire. Is not the subject one worthy of some attention?

Now, there are two ways in which all this evil comes upon us. The first is by the increase of seeds; the second, the want of prompt destruction when once the evil has commenced. The increase by seeds, under favorable circumstances, almost exceeds belief. We have counted the grains on a single moderate sized plant of chess, and found over three thousand. An equal increase the second year would produce nine millions; the third year, twenty-seven thousand millions; the fourth—but we will let some of our young arithmetical readers carry out the reckoning for ten years, and see if there is not enough seed by that time to turn the whole wheat crop of the globe to chess. A full grown, adult pigweed will yield eight thousand seeds—which may increase in a few years to countless myriads, just because, as Prof. Lindley says, the cultivator was unwilling to make “a single flexure of this vertebral column,” in extracting the first young weed from the soil. There are certain weeds, troublesome and costly in the highest degree in some regions of country, which are entirely unknown in others—simply because no seed have ever been deposited there. Then again there are other localities which were once plentifully infested, which have been completely eradicated, and not a single representative left. We could name several farmers who have succeeded in driving from both soil and seed, the last vestige of that insidious intruder, chess; and several others who by vigilance and industry, had exceedingly lessened the annual weeding of red-root. Such examples are worthy of imitation; and at the present season, when weeds are about preparing to form their millions of germs for increase, we hope the subject may receive the special attention of cultivators.—*Albany Cultivator.*

A SIMPLE WAY TO PACK EGGS.—Seeing frequently in our markets the great trouble many persons go to in packing eggs to bring to town, I would recommend them to try putting them up simply in a basket packed in soft hay closely up to the handle. I have tried this frequently and found it to answer just as well as any other way.

THE SUBSOIL PLOUGH.

There is one important consideration always to be kept in view in subsoiling; and that is, that the soil be first thoroughly drained. It should be drained one year before the operation of subsoiling is commenced, so that the cold spring water may have had time to pass off from the subsoil. Almost every garden will afford an illustration of the benefits of deep culture.—Trenching is a more thorough operation than subsoil ploughing, as it exposes the subsoil to view, breaks every portion to a greater depth, and mingles the two soils more intimately. None doubt that deep digging in the garden is profitable, and none who try it under proper circumstances will doubt that deep ploughing in the field is so.

It is only a few years since the first subsoil plough was introduced into this country, and was purchased in England for Messrs. Ruggles, Nourse, Mason & Co.; it cost forty dollars.

Now, superior subsoil ploughs may be had in this country for one-fourth of the cost of that in England; and they are of greater strength, for that plough was used only a short time before it was twisted so that a common observer could hardly tell for what purpose it was intended.

The subsoil plough is a valuable implement on many soils, by deepening the tillage and giving sufficient room for the descent of the roots of plants, and to promote the ascent of moisture, in dry weather.

By the use of this plough the subsoil is loosened deeply, mixed with the soil and gradually brought to the surface, where, by changes from the air, snows and frost, it becomes improved, and restores in some measure many fertilizing substances that have been lost on old lands.

Numerous examples have been given to the public, showing the great utility of this implement. Yet, in some cases, it has been reported that there was no perceptible advantage from its use, while in other cases, the crops have been increased fifty per cent.

Where no advantage has been found from the operation of subsoiling, the cause may undoubtedly be traced to the want of proper preparation of the ground by draining.—*N. E. Farmer.*

Never be idle. If your hands cannot be usefully employed, attend to the cultivation of your mind.

PLoughing and Seeding.—I wish you would encourage our agriculturists always to seed their grounds as fast as they plough. The amazing advantages will at once be apparent to the reflecting farmer. To those who will not think on the subject enough to see its importance, I recommend to "try a patch."

It is lamentable to see so many farmers ploughing for a week, and then when the whole field is done, and the weeds and grass seed pretty well germinated, begin to put in their crop.

The moisture and mellowness of the earth, when first turned, create immediate vegetation; delay loses this to the crop, and gives the advantage to the weeds and grass that are in the soil. Only look at it!

PAYMENTS TO THE SOUTHERN PLANTER,

From October 7th to November 1st, 1852.

James Jameson to June 1853,	\$1 00
James Bowen to September 1853,	1 00
Garland T. Wheatley to Sept. 1853,	1 00
Richard B. Baptist to January 1853,	3 50
J. Wallace to January 1853,	1 00
F. W. Boyd, in full,	3 50
C. P. Warner to July 1854,	4 00
Lewis Mabry to October 1853,	1 00
James Fitch to July 1853,	2 00
Samuel P. Wilson to September 1853,	1 00
Jones C. Green to June 1853,	1 00
W. A. Wiglesworth to September 1853,	1 00
W. H. Cousins to January 1857,	10 00
E. R. Turnbull to January 1854,	2 00
Walter Turpin to September 1854,	2 00
Capt. Joseph Phillips to January 1853,	6 00
Mrs. Susan H. Powell to July 1853,	1 00
Robert W. Fox to July 1853,	1 00
H. L. Jeffries to January 1853,	1 00
William Carter to January 1855,	2 00
S. T. Barclay to January 1854,	2 00
John H. Montague to October 1853,	1 00
George W. Pollard to July 1853,	1 00
J. L. Cabell to June 1853,	1 00
George W. Ball to September 1854,	2 00
Simeon Gibbons to July 1854,	1 00
John P. Resor to September 1853,	1 00
Charles Bruce to September 1854,	2 00
George Whitlocke to January 1853,	1 00
Dr. Faulcon to January 1853,	1 00
W. H. Harrison to January 1854,	1 00
Maj. B. Craig to September 1853,	1 00
Stafford G. Cocke to September 1853,	1 00
Robert Wilson to July 1853,	1 00
John Lewis to January 1854,	3 00
B. Franklin Carter to September 1853,	1 00
Norborne Berkeley to September 1853,	1 00
Addison Carter to September 1853,	1 00
R. H. Dulany to September 1853,	1 00
Robert T. L. White to September 1853,	1 00
A. H. Clark to September 1853,	1 00

ANALYTICAL LABORATORY

FOR THE ANALYSIS OF SOILS, &c.—The undersigned announces, that through the liberality of the Planters of the adjacent counties, there has been established, in connection with the Department of Chemistry in Randolph Macon College, an Analytical Laboratory, for the analysis of soils, marls, plaster, guano, minerals, &c., and for instruction in Analytical Chemistry. The Laboratory will be furnished with the most approved apparatus and choice re-agents, with every desirable facility. He has associated with him Mr. William A. Shepard, who was recently assistant to Professor Norton, in the Yale Analytical Laboratory, and who comes with ample testimonials of skill and capacity. Young men can pursue any studies in the College they may wish, while they are receiving instruction in the Laboratory. Copious written explanations will always accompany the reports of analysis. The charges for analysis and instruction will be moderate—the design being to make the Laboratory accessible to the people at large. Packages left with Messrs. Wills & Lea or Smith & Dunn, Petersburg, Virginia, will be forwarded, free of charge, to those who send them. For further information, address CHAS. B. STUART, Professor of Experimental Sciences, Randolph Macon College, Va. oc—tf

2 SOUTHDOWN BUCKS FOR SALE.

THE subscriber has for sale Two Bucks of the Southdown Blood. These Sheep are descended from the best Southdown stock in England. They are grandsons by the buck imported by Bishop Meade from the flock of Mr. Webb, and they are sired by an equally good and well bred sheep, obtained of the late Dr. M'Caulay, near Baltimore. This sheep has a long pedigree of illustrious ancestors. My bucks are seven-eighths Southdown and the remainder Cotswold and Bakewell blood, and are now one year old, and ready for service in October next.

RALEIGH COLSTON,
Near Woodville Depot P. O. Albemarle.

ANALYSIS OF SOILS, &c.

THE undersigned is prepared to execute the analyses of Soils, Guano, Marls, Plaster, &c. &c. at the Laboratory of the Virginia Military Institute. Packages may be forwarded through Webb, Bacon & Co. Richmond, or Echols & Pryor, Lynchburg.

Persons desiring further information will please address

WILLIAM GILHAM,
Prof. Chem. and Agriculture, V. M. I.
Feb. 1, 1852.

Lexington, Va.

BOOK AND JOB PRINTING executed at this Office with neatness and dispatch. Office South Twelfth Street.

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Medicines; also, Paints, Oils, Varnish, Dye
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in the most accommodating terms.

Orders from Country Merchants and
physicians, thankfully received and promptly
attended to.
ja 1851—tf

**GENCY FOR THE PURCHASE AND
SALE OF IMPROVED STOCK.**

STOCK Cattle of all the different breeds;
Sheep, Swine, Poultry, &c. will be pur-
chased to order, and carefully shipped to any
part of the United States, for which a reasona-
le commission will be charged. Apply to

AARON CLEMENT, *Philadelphia.*

Refer to Gen. W. H. Richardson, Richmond,
Virginia.

N. B.—All letters, post-paid, will be prompt-
ly attended to.
ap—tf

VIRGINIA AXES.

THE undersigned, in connexion with their
Rolling Mill, have erected an extensive
Manufactory of Axes, Hatchets, and Tools
generally, which they warrant equal to any
manufactured, and offer at Northern prices.
They solicit the patronage of the agricultural
community.

L. ARCHER,
A. D. TOWNES,
L. S. ARCHER,
C. DIMMOCK.

R. ARCHER & CO.

oct—ly

SOUTHERN FRUITS.

HOPEWELL NURSERIES, Fredericks-
burg, Virginia.—The Proprietor offers
or sale a large stock of Fruit and Ornamental
Trees, Evergreens, Roses, &c. Having wit-
nessed the evil of circulating numerous North-
ern Fruits, without proper regard to proving
their quality and adaptation to a Southern cli-
mate, the proprietor has looked more to the
South for his Winter Apples, and has intro-
duced many superior varieties, perfectly
adapted to our long hot summers; and keep-
ing late in the Spring.

Also a large stock of Pears, Cherries,
Peaches, Plums, Apricots, Grapes, Strawber-
ries and other Fruits—a fine stock of Roses
and other Flowers. His prices are low. For
particulars see Catalogue, which will be sent
to all post-paid applicants. Trees packed in
the best manner, and shipped according to or-
ders to any part of the United States.

oc—21* HENRY R. ROBEY.

NEW PLASTER AND BONE MILL.

THE subscriber offers for sale fine Ground
and Calcined Plaster, both of the best
and purest quality; he has also a Bone Mill
attached, and intends to keep a supply of
Ground Bones, fine and pure. Farmers and
others are invited to call and examine for
themselves. His prices shall be as low as the
same quality articles can be bought for, North
or South. The highest cash price will be paid
for dry bones, delivered at his Mill adjoining
the Paper Mill.

oc—if

R. R. DUVAL.

**DR. VALENTINE'S RECIPE FOR
MAKING ARTIFICIAL GUANO.**

No. 1. Dry Peat,*	-	-	20 bushels
No. 2. Wood Ashes,	-	-	3 bushels
No. 3. Fine Bone Dust,	-	-	3 bushels
No. 4. Calcined Plaster,	-	-	3 bushels
No. 5. Nitrate of Soda,	-	-	40 pounds
No. 6. Sal Ammoniac,	-	-	22 pounds
No. 7. Carb Ammonia,	-	-	11 pounds
No. 8. Sulph: Soda,	-	-	20 pounds
No. 9. Sulph: Magnesia,	-	-	10 pounds
" 10. Common Salt,	-	-	10 pounds

* If peat cannot be obtained, use garden mould,
or clean virgin soil instead.

DIRECTIONS FOR MIXING.—Mix Nos. 1, 2, 3,
together—mix Nos. 5, 6, 7, 8, 9, 10, in four or
five pails of water, or enough to dissolve the
ingredients. When dissolved, add the liquid
to the mixture, (1, 2, 3,) and mix as in making
mortar. When thoroughly mixed, add No. 4,
(the calcined plaster,) which will absorb the
liquid and bring the whole to a dry state. Mix
under cover in a dry place—pack so as to ex-
clude air—observe the proportions in making
small or large quantities. The above receipt
will make one ton, which will manure seven
and a half acres of land.

Having furnished the above to a number of
farmers who have tested its qualities—many
thinking it equal to natural guano—the sub-
scribers have made arrangements to furnish
any quantity during this season, and will sell
the ingredients exclusive of the Peat, Wood
Ashes, Plaster and Salt, (articles on every
farm,) at the low price of \$10 per ton. One
sugar hogshead will hold ingredients enough
for five tons. All orders will be carefully and
promptly executed, and sent to any part of the
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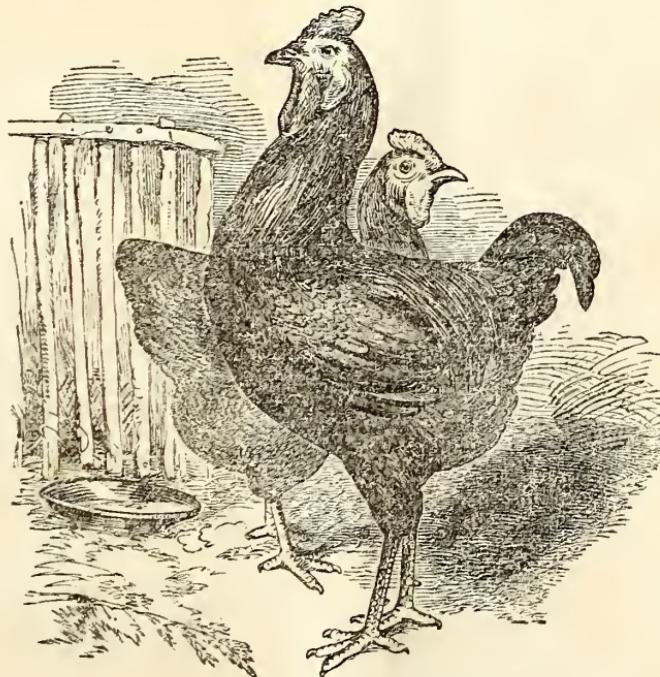
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Richmond, Nov. 1, 1852.

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Nov—1t